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253 Bourse Building, PHILADELPHIA

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BALTIMORE, MD.

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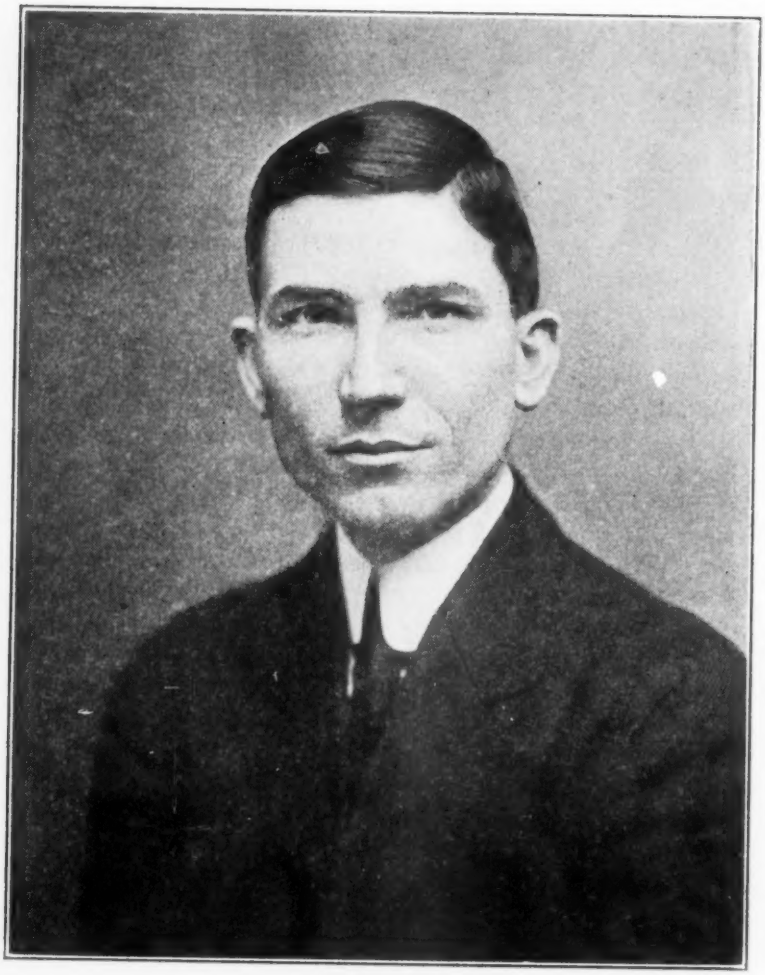

E. F. KELLY

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XI JANUARY, 1922 No. 1

EVANDER FRANCIS KELLY.

The newly elected treasurer of the American Pharmaceutical Association does not come to the office as a seasoned veteran who has passed through long years of pharmaceutical experience, nor as a novice on the threshold of such experience, but as one between these extremes, bringing sufficient youth to add imagination and enthusiasm to the work in which he is interested, balanced with mature thought and judgment which is only acquired by intense application to one's chosen work.

Evander Francis Kelly was born near Carthage, N. C., July 2, 1879. His youth was the simple country life so desirable in preparation for a well-balanced career. He obtained practically all of his preliminary education in a private school, spending one year in the Agricultural and Mechanical College at Raleigh, N. C., specializing in mathematics, and then taught in the Union Home School for one year.

He first became interested in pharmacy when one of his relatives who was engaged in the retail drug business in Green Cove Springs, Fla., became ill and asked that he help in the management of the store. He spent about two years in this connection, then entered the Maryland College of Pharmacy, in 1900, from which he graduated with high honors in 1902.

He became associated with Sharp & Dohme, manufacturing pharmacists, in 1902, and continued with them in various capacities until 1911. Since that time his business connections have been varied, being engaged as a consultant in many commercial enterprises, and also interested in the manufacture of pharmaceutical products.

Dr. Kelly has been connected with the Maryland School of Pharmacy since 1903, acting first as Assistant in the Pharmacy Laboratory; then, in 1906, as Associate Professor of Pharmacy; in 1917 as Professor of Pharmacy; and in 1918 as Dean of the Faculty. Since 1917 he has been Lecturer in Pharmacy at the Johns Hopkins Medical School.

He has been a member of the American Pharmaceutical Association since 1905, and has been active in both the American Pharmaceutical Association and the Maryland Pharmaceutical Association. He has been Secretary of the Maryland Pharmaceutical Association since 1907, and was Secretary of the Baltimore Branch of the A. Ph. A. for two years and President of the Baltimore Branch of the A. Ph. A. for two years. He has served as a member of the Council, is now Chairman of the House of Delegates of the A. Ph. A., Vice-Chairman of the American Conference of Pharmaceutical Faculties, and a member of the Pharmaceutical Syllabus Committee, as well as a member of the Revision Committee of the United States Pharmacopoeia.

Professor Kelly was married to Marian Low of Green Cove Springs, Fla., in 1906. Four children have been born of this union, and they are being reared on the farm "Montrose" near Texas, Md.

The new treasurer is a "joiner." He holds membership in the North Carolina Society, the Elkridge Hunt Club, The Engineers' Club, Maryland Academy of Sciences, and the Johns Hopkins Club, and hopes when he has more time at his disposal, to enjoy these connections. He is, however, a regular attendant at the meetings of the Wedgewood Club.

He has contributed some articles to the literature of pharmacy, but possibly his greatest accomplishment in that line was the revision of "Caspari's Treatise on Pharmacy," which he completed in 1920.

He has been a member of the Maryland Board of Health since 1920, and stands ever ready with untiring zeal and fervor to serve his adopted state and chosen profession. Maryland, especially the School of Pharmacy of the University of Maryland, may well be proud that her adopted son has been honored with one of the highest offices of the American Pharmaceutical Association. B. O. C.

"THEY BOB UP SERENELY."

For some years a certain correspondence school has been operating from a mid-western metropolis with some of its graduate work, so-called, being conducted from another part of the country. It outranks anything of its kind because one can get any one or all of four degrees and do all the work by correspondence. It is known as a college or department of a university named after two great Americans whose names it is a shame to see attached to any such institution.

Now comes the newest development. Literature of precisely the same sort with identical wording comes from an entirely different source. It is mailed from a city in the extreme east of the United States but the school is a part of a university hitherto unheard of and located in a city in the extreme southwest.

One can only guess what the explanation may be. Perhaps the original institution is meeting new difficulties: they have had to admit trouble in one state. Perhaps people are not matriculating in such numbers as formerly. Both states from which they were operating have prerequisite laws, so they probably are unable to do much locally. It seems obvious that if it were all smooth sailing there would be no reason for operating under a new name; on the contrary there would be every reason for continuing under the old name. It may be an entirely new institution started by people who knew of the one and believed another would be a good revenue producer.

One is reminded of the similarity to the patent medicine business. Some worthless or dangerous concoction is highly advertised and is netting its producers thousands of dollars. It is brought to the attention of government authorities and a fraud order is issued against it. Shortly an absolutely new remedy appears, new name, new claims, perhaps to be taken for another ailment even but it is the same business concern putting forth something to catch the eye of a gullible public. There is this difference: there is more chance of eliminating entirely the "fake" college than there is of putting an end to the manufacture of worthless patent medicines. Gradually the prerequisite idea is making headway. If those who believe in it keep pounding away it is bound to win.

ZADA M. COOPER.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

THE NARCOTIC EVIL AND LEGISLATION.

There can be but little difference of opinion in regard to the grave menace which the narcotic drug habits at this time constitute. Public health and police records in every American city show that in spite of measures taken to curtail it the narcotic evil is becoming more prevalent. While the conditions are most aggravated in the seaports and cities near international boundary lines, scarcely a hamlet but has yielded its victim.

Sad as the condition is, there is some cause for satisfaction in the knowledge that of the narcotic drugs distributed through legitimate channels but very small amounts, relatively, escape into the illicit trade. The Harrison Act of 1914, amended in 1918, the provisions of which have been carried out in good faith by the overwhelming majority of pharmacists and physicians, has proved as effective as such a measure could be expected to be.

The great quantities of morphine and cocaine which are being sold by "dope" peddlers are not obtained, directly or indirectly, from the wholesale or retail drug trade of this country. These goods are smuggled in, either through the seaports or over the Canadian or Mexican borders. Nor is this due to carelessness or lack of good faith on the part of customs officials. Seizures of narcotics are being made constantly, but undoubtedly much larger quantities escape the vigilance of customs inspectors. The packages are small and easily concealed. The price of narcotics in regular channels is high, but the price which the illicit dealer can afford to pay is much higher. A member of the crew of a freighter may walk ashore in a Pacific Coast port with enough morphine in the lining of his coat to yield him a rich reward once he delivers it to the dealer, whom he generally knows how to find. Both Americans and Canadians have found it easy to bring narcotics over the boundary line. Those engaged in this traffic do not always follow the main-traveled highways. The boundary line is long and the customs officers are but few.

Undoubtedly the narcotic evil is one which requires the constant vigilance of municipal, state and federal officials in every section of the country. However, in considering the evil we must never forget that it is a world problem, and that it must be dealt with as such. The nations have for some years recognized this as a matter which required concentrated action. The International Opium Convention, held at The Hague in 1912, reached an agreement which was signed by nearly all of the powers, including the United States. This instrument pledged the contracting powers to regulate the importation, manufacture and distribution of narcotics within their own territories, and to prohibit the exportation of these except to persons having authority under laws of the importing countries.

In 1914 the Congress of the United States passed two laws designed to fulfill the pledges made at The Hague in 1912. One of these, the Harrison Act of December 17, 1914, was intended to regulate the distribution of narcotics within our own borders. Earlier in the year there had been passed a law designed to

regulate the importation and exportation. In regard to importation this act provided that narcotics could be brought into the country for medicinal purposes only. It forbade exportation of narcotics except to those countries whose laws placed suitable restrictions upon their entry and distribution. In order that information might be available concerning the laws of the various nations as these concerned narcotic drugs, our law of 1914 directed the Secretary of State to request all foreign governments to communicate their laws and regulations governing the importation of narcotics. Our act also provided that after copies of the laws and regulations of the various nations had been received the Secretary of State, the Secretary of the Treasury and the Secretary of Commerce should jointly make and publish proper regulations for carrying the provisions of the law into effect.

There was a long delay in the issuance by the three Secretaries of the regulations provided for in the law, and it was not until May 1, 1920, that the regulations finally went into effect. During this period of delay the exportation of narcotics from the United States reached enormous proportions, especially during 1919 and the early months of 1920. From one Pacific Coast port alone, during the period between July first and December first, 1919, there were exported to Japan, opium, morphine salts and cocaine which amounted to 550 million U. S. P. doses of these narcotics. This did not include large shipments through the same port of British narcotics, sent across United States territory in bond enroute to Japan. There is every reason to believe that by far the greater part of these purchases of narcotics made by Japan were distributed in China in direct violation by Japan of international agreement. It is also certain that at least some small quantities of these narcotics of American manufacturers recrossed the Pacific to be smuggled into the United States. When the regulations issued jointly by the three Secretaries went into effect in May 1920, the exportation of opium, opium alkaloids and cocaine to Japan was prohibited.

Some who have discussed the international phases of the narcotic evil have taken the ground that since the regulations have stopped the flow of narcotics to Japan, the nation which was the worst offender in improper distribution, no further action is necessary. However, it was not only the narcotics sent to Japan which entered illicit trade. The report of the Special Narcotic Committee appointed by the Secretary of the Treasury, which report was made in June 1919, calls attention to the fact that the exports of opium and morphine to Canada greatly increased between 1913 and 1918. The Committee believes this an indication that "considerable quantities of these smuggled goods are exported from this country for the purpose of re-entry through illicit channels."

Those who have studied the matter most carefully are convinced that further legislation is necessary. The Jones-Miller Bill (H. R. 2193 or S. 206) now before Congress is intended to remedy some of the defects in the law of January 17, 1914. While the original law provides that narcotics may be exported to those countries where laws provide suitable regulations for entry, the proposed law requires that these goods may be shipped only to those persons who furnish adequate proof that the drugs are to be applied exclusively to medicinal and legitimate uses, that they will not be reëxported, and that there is a shortage of the drug ordered.

While the present law says that opium, coca leaves and their derivatives and preparations may be imported into this country for medicinal use only, the Jones-Miller Bill would limit importation to the amounts which the Secretaries of State, Treasury and Commerce may consider necessary to supply legitimate demands. The proposed law also forbids, as far as the narcotic drugs are concerned, the privilege of "in transit" shipments across United States territory.

Surely the provisions of the Jones-Miller Bill are not too drastic. Any legitimate dealer in a foreign country can furnish proof that the narcotic drugs he is ordering are needed, and that they are for legitimate use. Certainly it is only reasonable that the proper authorities should have supervision over the amounts of opium and coca leaves imported into this country. If this had been exercised earlier certain American firms would not have been able to export hundreds of thousands of ounces of morphine salts to Japan in 1919 and 1920. This would have prevented America's participation on an enormous scale in the drugging of China. No one will question the desirability of stopping "in transit" shipments across the United States, a privilege which has given British firms opportunity to sell narcotics in Japan in evasion of British laws.

The Jones-Miller Bill of the 66th Congress was objected to, even by some friends of anti-narcotic legislation, because it absolutely prohibited exportation of opium, morphine and cocaine. This was unfair, because it would have made it impossible for American firms to supply the legitimate demand for these agents for medicinal use. If they had been forced to refuse orders for the narcotic alkaloids and opium preparations, undoubtedly their general business would have suffered. However, the Jones-Miller Bill as now before Congress provides for exportation of the drugs in question for medicinal use, and it would seem that every reasonable objection to the Bill has been removed.

The Jones-Miller Bill, if passed, will not end the world's narcotic traffic. Much will remain to be done by the other nations, some of which may be slow to act. But the passage of the Bill will show the world that America is wholly sincere in carrying out the pledges made at The Hague Convention, and will undoubtedly stimulate other nations to emulate our example. Just as it was necessary for the United States to act as a leader in the limitation of armaments, so it is in this matter. The standards of morality and fair dealing prevailing among the nations are not likely to be higher than those maintained by the United States.

The Jones-Miller Bill has been held in committee pending the disposal of administration measures of the greatest importance. It is probable that the Bill will be reported out in January or February. Public opinion, as far as it has been attracted to the measure, is strongly in favor of its passage. Pharmacists, who know all too well the supreme importance of curtailing the narcotic traffic, should unitedly support the Bill. Communications from associations, colleges, and individuals, to Senators and Congressmen, urging support of the Bill, will help.

A. W. LINTON.

THE DETERMINATION OF DIGITOXIN IN DIGITAN.

BY L. E. WARREN.

Because of the great value of digitalis in medicine, the chemistry of the drug is a subject of much interest. Although many chemists have devoted their energies to the solution of the problems of digitalis chemistry, the subject, because of its great complexity, still remains only partially solved. A number of proximate principles are reported to have been obtained from digitalis, chief among which are digitoxin, digitalein, digitophyllin, digitonin and gitalin. Since the chemistry of digitalis is in a controversial state, some of these so-called active principles may be shown later to be mixtures or derivatives of more complex substances, originally present in the drug. Alkaloids are not present.

It is generally conceded that the activity of digitalis leaves is due almost entirely to the presence of the glucosides. The physiologic activity of the individual glucosides varies considerably, some being very toxic while others are much less active. The ease with which the glucosides are absorbed by the organism is also an important factor in judging the activity. It seems to be established that the quantities and the proportions in which the individual glucosides exist in digitalis leaves are not constant. This may account for the variable quality of the drug. There has been much controversy as to which of the principles in digitalis is the active therapeutic agent or the chief active therapeutic agent. At one time digitoxin was supposed to have this distinction, but it is now admitted that digitoxin is not the only valuable constituent. At least there are active principles in digitalis other than digitoxin, which have a modifying, additive or synergistic action on the digitoxin.

The chemical assay of digitalis has often been attempted but to date no method satisfactory in all particulars has been evolved. Nearly all of the assay processes proposed endeavor to isolate the digitoxin and either weigh it as such or estimate it by colorimetric methods. One of the earlier methods proposed was that of Keller.[1] Essentially this is as follows:

> The ground leaves (10 Gm.) are percolated with 70 percent alcohol, the solvent removed by evaporation, the residue taken up in water, an excess of lead acetate solution added, the precipitate removed by filtration, the excess of lead in the filtrate precipitated by sodium sulphate, the lead sulphate removed by filtration, the filtrate made alkaline with ammonia water and shaken successively with small portions of chloroform. The solvent is removed by evaporation, the residue taken up in a mixture of chloroform and ether (3 + 7) and the mixture poured with stirring into an excess of petroleum ether. The flaky precipitate is collected, washed, dried and weighed.

The Keller assay method was modified by Fromme[2] who used maceration instead of percolation for extracting the drug and employed aliquot parts in place of the clarified entire extract for the completion of the assay. Fromme determined the digitoxin content of a great many specimens of digitalis at this time and in succeeding years. He and Focke[3] questioned whether the digitoxin assay is a reliable index of the toxicity of digitalis, and they concluded that the digitoxin content and the physiological activity of the drug, as determined on frogs, did not run parallel.

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[1] *Ber d. Pharm. Ges.*, 7, 125, 1897.

[2] Caesar and Loretz, *Geschäfts-Bericht*, 1897, p. 25.

[3] *Deutsch. Aerzt. Zig.*, 6, 292, 1904; *Hygienic Lab. Bull.*, 48, 9, 1909.

Arnold and Wood[1] appear to have been the first to question whether digitoxin represents the total of the therapeutic activity of digitalis. They determined that the average amount of digitalis to kill a given weight (1 kilo) of dog was 0.150 Gm. Under the same conditions it required about 0.003 Gm. of pure digitoxin to kill. The authors calculated that, since digitalis may be assumed to contain about 0.2 per cent of digitoxin, the fatal dose of the drug for the dog would contain but 0.0003 Gm. of digitoxin or about one-tenth of the amount actually required. In a later report Wood[2] states that, in general, clinical reports indicate that digitoxin has about 25 percent of the therapeutic effect of the digitalis from which it is prepared. Any assay of digitalis, therefore, which is based on digitoxin content discards about three-fourths of the active substance of the drug.

Three specimens of fluid extract of digitalis which had been assayed by the physiological method on frogs, were subjected to the Keller assay by Famulener and Lyons.[3] The results from the few tests made appeared to show that the method does not give very close duplicates and that the results probably do not indicate correctly the relative strength of the samples assayed.

Ziegenbein[4] investigated the reliability of the Keller-Fromme assay. Using frogs for the tests he compared the activity of digitoxin which had been obtained by the Keller-Fromme method from a given weight of dried digitalis leaves with the toxicity of the extract from the same quantity of leaves. He found the activity of the separated digitoxin to be only from 15 to 40 percent of that of the extract. He concludes that the quantity of digitoxin as determined by the assay bears no relation whatever to the toxicity of the drug.

The investigations of Barger and Shaw[5] also showed that the Keller assay is not an index of the strength of galenical digitalis. They assayed commercial specimens of tincture of digitalis by the Keller process, slightly modified, and tested the same preparations by physiological tests on frogs. The separated digitoxin had only about one-half of the toxicity to frogs which was possessed by an equivalent quantity of the original tincture. They prepared an artificial tincture by percolating hay with alcohol and adding a definite weight of digitoxin to it. This tincture was assayed by the Keller method and the resultant substance supposed to be digitoxin was tested on frogs. The activity of this material was only about two-thirds of that expected from the digitoxin taken. The authors concluded that as yet there is no satisfactory method for digitalis assay except the physiological one.

Reed and Vanderkleed[6] assayed nine specimens of digitalis preparations by the Keller method and tested the activity of the same preparations on guinea pigs. They did not determine the activity of the separated digitoxin. They reported a considerable degree of relationship between the findings by the two methods but, as Edmunds and Hale[7] have pointed out, there are serious exceptions to a perfect parallelism.

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[1] *Am. Jour. Med. Sci.*, 120, 165, 1900.
[2] *Am. Jour. Pharm.*, 80, 107, 1908.
[3] *Proc. Am. Pharm. Assoc.*, 50, 415, 1902.
[4] *Arch Pharm.*, 240, 454, 1902.
[5] *Pharm. Jour.*, 73, 249, 1904.
[6] *Am. Jour. Pharm.*, 80, 110, 1908.
[7] *Bulletin, Hygienic Laboratory*, 48, 9, 1909.

Further evidence of the worthlessness of the Keller method has been offered by Tschirch and Walter[1] and by Schmidt and Heyl.[2] Tschirch and Walter tried many methods for the chemical assay of digitalis. The method which they recommend as the best is as follows:

> The leaves are first exhausted with ether by which chlorophyll, fat and resin are removed. They are then treated according to Keller's method but after precipitating with lead acetate, the glucosides are shaken out with acetone, the acetone solution being made to separate by adding sodium chloride. The solvent is drawn off, evaporated on the water-bath and the residue dried and weighed.

By this procedure it is claimed that a mixture of all the active constituents of the leaves is obtained. The physiological activity of this mixture is, however, less than that of the corresponding quantity of the solution before removal of the active principles, although the residue left after the extraction is quite inactive. Nevertheless, the authors claim that the acetone method is a reliable chemical method of assay, inasmuch as by it all of the active constituents, and not the digitoxin alone, are separated and weighed. The work of Tschirch and Walter, apparently, has not been repeated by other workers so that their method is still in the experimental stage.

It will be seen from this brief review that the Keller assay process, with some modifications, is still considered the best method for the chemical assay of digitalis, unless Tschirch and Walter's method be accepted. However, it has been practically demonstrated that digitoxin does not represent the entire therapeutic virtues of digitalis and that the digitoxin content (as obtained by the Keller-Fromme process) does not run parallel with the therapeutic activity of the drug. Consequently a chemical assay of digitalis for its digitoxin content is of little value in evaluating the drug. Most writers believe that the biologic assay is the only criterion by which proper valuation of the drug may be judged. A few like Reed and Vanderkleed[3] maintain that the Keller method, if carefully carried out, is a valuable adjunct to the biologic assay.

Digitan is a digitalis preparation which is claimed to be a mixture of digitalis glucosides in the form of tannates diluted with milk sugar. Weight for weight it is said to be equivalent to digitalis leaves of standard quality. Digitan was originally called *digipuratum* and was introduced into "New and Nonofficial Remedies" under that name. The product is stated to be controlled by the Gottlieb biological method and is standardized so that 0.001 Gm. of the substance will permanently stop the heart of a 30 Gm. frog within an hour in the majority of cases. The method given in "New and Nonofficial Remedies" for the chemical assay of digitan (digipuratum) is an adaptation of a part of the Keller process. It omits clarification of the extractives by lead acetate solution. This method was furnished by Knoll and Company at the time the product (digipuratum) was being considered by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in "New and Nonofficial Remedies." No control assays were carried out by the A. M. A. Chemical Laboratory at the time.

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[1] *Schweiz. Apoth. Ztg.*, 56, 469, 495 and 512, 1918.

[2] *Am. Jour. Pharm.*, 91, 425, 1919.

[3] *Ibid.*, 80, 110, 1908.

Through a series of biologic tests on extractives obtained from digitan by the "N. N. R." chemical assay method, it seemed doubtful whether the method of chemical assay furnished by Knoll and Company was reliable. This would be expected in view of the generally accepted belief in the unreliability of the Keller-Fromme method. However, since the method given by Knoll and Company is a very marked deviation from the Keller-Fromme process and the product is distinctly different from digitalis, it seemed worth while to investigate the subject further. Accordingly, specimens of digitan were purchased and, after thorough mixing, were assayed for digitoxin by the method described in "New and Non-official Remedies" in the Laboratory of the American Medical Association. The assays were carried out in duplicate. The method used is as follows:

Ten Gm. of digitan are dissolved with moderate heat in 50 cc of water, 5 cc of 10 percent ammonia water are added and the liquid extracted with chloroform. The chloroformic extractions are filtered into a tared vessel and the chloroform removed by distillation. The residue is dissolved in 3 Gm. of chloroform, the solution mixed with 7 Gm. of ether and 50 Gm. of petroleum ether and the mixture allowed to stand over night. The separated flakes are collected on a small filter, the residue on the filter dissolved in absolute alcohol, allowing the solution to run into the tared distilling vessel. The solvent is distilled off and the residue dried to constant weight. The digitoxin thus found should not amount to more than 0.04 Gm.

It will be observed that this method limits the digitoxin obtainable from digitan to 0.4 percent. It should also be noted, as previously mentioned, that the method omits the clarification with lead acetate which is a part of the Keller method.

It had been found in earlier experiments with the assay of digitan that coloring matter (and perhaps other substances) could be obtained apparently almost indefinitely by repeated shaking with chloroform. In these assays, the alkaline solution of digitan was shaken eight consecutive times with 15 cc each of chloroform. This was adopted arbitrarily in lieu of any definite directions concerning the manner in which the shaking is to be carried out and is in agreement with the observations of Tschirch and Walter[1] who found eight shakings to be necessary. In the method originally presented to the Council by Knoll and Company, the directions were to continue the extraction until a portion of the chloroformic extract, after evaporation of the solvent and solution of the residue in glacial acetic acid, would no longer give a greenish blue tint with sulphuric acid containing a trace of ferric iron. This portion of the directions had been omitted from "N. N. R." In the assay, as a matter of record, the chloroformic extracts before purification were evaporated on a gently simmering steam-bath, the residues dried over sulphuric acid and weighed. The chloroform-ether-petroleum-ether solutions, from which the substance supposed to be digitoxin had been precipitated, were evaporated to dryness, the residue dried over sulphuric acid and weighed. These fractions were tested for activity by the biologic method.[2] After extraction by chloroform, the alkaline solution of digitan remaining was submitted to biologic

[1] *Schweiz. Apoth. Ztg.*, 56, 469, 1918.

[2] The several fractions obtained in the digitan assay were tested pharmacologically by Dr. Robert A. Hatcher in the pharmacologic laboratory of Cornell University Medical College. The writer gratefully acknowledges his indebtedness to Dr. Hatcher for the aid rendered and also for many helpful suggestions given.

tests (after removal of the dissolved chloroform by gentle evaporation). The fraction supposed to be digitoxin was also tested for activity by the pharmacologic method.

Duplicate assays of the specimens of digitan gave, respectively, 1.104 and 1.064 percent of substance supposed to be digitoxin, or more than $2^1/_2$ times the quantity permitted by the standards established by the test.

The results of the chemical examination are tabulated herewith.

CHEMICAL ASSAY OF DIGITAN.

Sample.	Weight of Sample.	Chloroform Soluble Residue.	Chloroform-Ether-Petroleum-Ether Residue.	Digitoxin.
A	10.0098 Gm.	0.1837	0.0682	0.1104
B	10.0037 Gm.	0.1822	0.0678	0.1064

The digitoxin residue was dissolved in dilute alcohol and the solution diluted with normal salt solution before testing its activity on cats. The toxicity when injected continuously into cats by the intravenous method was found to average 1.8 mg. × Kg. of body weight. (Full details of the method and protocols of the findings will be published in the *A. M. A. Therapeutic Research Reports.*) A dose of this residue of 1.5 mg. × Kg. of body weight was then injected intravenously into each of three cats, the animals were returned to their cages, after which an interval of three hours was permitted to elapse and the animals were then injected with ouabain solution 1–200,000 until death occurred. The quantity of ouabain required to produce death indicated a toxicity for the residue being tested, of about one-sixth of that of pure digitoxin.

By the same method, the chloroform-insoluble fraction of digitan was found to contain about two-thirds to three-fourths of the total toxicity of the product.

The residue obtained by the evaporation of the chloroform-ether-petroleum-ether solution from which the digitoxin was supposed to have been precipitated was totally inert.

It is evident that the substance obtained from digitan in the digitoxin assay method as described in "New and Nonofficial Remedies" is not pure digitoxin. For the determination of digitoxin the method is, therefore, valueless.

LABORATORY OF THE
AMERICAN MEDICAL ASSOCIATION.

DETECTION OF WOOD SPIRIT IN ALCOHOLIC BEVERAGES.

BY A. B. LYONS.

One of the tests most easily applied for the presence in a liquid of methyl alcohol is that known as Hehner's Test, in which milk plays the part of detective, aided and abetted by a trace of ferric iron. Ordinary milk, however, as a chemical reagent leaves much to be desired. As long ago as 1905 I proposed the substitution for milk of a solution of beef peptone.[1] The suggestion was favorably received, as indicated by a recently published routine method for the detection of methyl alcohol in distilled spirits.[2] It was possibly a retrograde step, but I ventured to suggest in 1920[3] the use in this test of powdered skim milk.

[1] *Proc. Am. Pharm. Assoc.*, 1905, p. 326.

[2] P. Hasse, *Pharm. Zentr.*, 61, 177, 1920 (*J. Soc. Chem. Ind.*, 345A, 39, 1920).

[3] "Practical Standardization of Organic Drugs," p. 84.

Recently I have undertaken a study of this modification of the Hehner test, with rather interesting results. Uniformity in composition of the milk powder, which is now easily obtainable as a food product, is its most important recommendation for use as a reagent. For use it is to be dissolved in distilled water in the proportion of 0.200 Gm. to 10 cc of water. The test for methyl alcohol is made by oxidizing the distilled sample with potassium permanganate in the usual manner, adding to a measured quantity of the filtered solution about half its volume of the "milk" and underlaying the mixture with sulphuric acid containing a trace of ferric sulphate. If the fluids are mixed at once by shaking, a purple color is produced of an intensity corresponding with the quantity of wood spirit potentially present.

It is assumed that some ethyl alcohol is present in the fluid under examination—approximately 10 percent previous to oxidation. In absence of methyl alcohol the color resulting from mixing the fluids as described is at first a dull orange with an amber shade, then gradually darkening towards brown. If the sample contained a little wood spirit the color is more or less deeply tinged with purple, and if the quantity of methyl alcohol is at all large (*e. g.*, 0.2 percent of the fluid previous to oxidation) the color becomes almost at once strongly purple. It is important, however, that the heat produced by mixing the fluid with the reagents be normal in amount, otherwise the color develops only slowly. Indeed if the fluids be chilled by plunging the tube containing them into ice water before mixing them no change of color takes place at once—possibly none on standing several hours at room temperature.

Again, the color results are influenced greatly by the quantity of milk added. If the quantity of milk is too small, the purple color is pale; if the quantity is excessive, the color shows an admixture of brown. In spite of these irregularities it is possible to devise a routine procedure which will lead to reasonably satisfactory conclusions.

A BETTER WAY.

My colleague, Martin Dodsworth, suggested a trial of egg albumen in place of milk powder or peptone. This may be had in dry form, and can be kept indefinitely in the laboratory as a reagent. A convenient strength for the solution is 0.100 Gm. in 10 cc of water. Repetition of the tests above described, substituting dried egg albumen for milk powder, demonstrated at once the immense superiority of the former. In absence of methyl alcohol the color resulting from the test was a pure golden yellow, exhibiting a strong green fluorescence. The same fluorescence is present also when milk powder is used. The effect of a very minute quantity of methyl alcohol is seen in a faint change in the yellow color of the fluid after 60 seconds. Increase in the quantity of methyl alcohol reduces the time before any noticeable color change occurs to 40, 20 and 10 seconds, and gradually it becomes plain that the new tint is purple. The test then makes it possible to demonstrate with certainty the presence of mere traces of methyl alcohol, and to estimate with a fair degree of precision the quantity of this by comparison colorimetrically with standards of known strength. Absence must be postulated of compounds (*e. g.*, some of the higher alcohols) which behave like methyl alcohol under this test.

ROUTINE PROCEDURE FOR DETECTION OF WOOD SPIRIT IN ALCOHOLIC BEVERAGES.

In case of distilled spirits containing approximately 45 percent (vol.) of alcohol, add to 5 cc of the sample 20 cc of water and distil off 20 cc (or distil slowly 10 cc and add to this distilled water to bring the volume to 20 cc). In case of wines or other beverages containing 10 to 20 percent of alcohol, mix 10 cc of the sample with 20 cc of water, add 1 cc of alcohol U. S. P. (0.5 cc if the alcoholic strength is 15 percent—none at all if the strength is 20%), and distil to obtain 20 cc as above. The distillate is intended to contain all the methyl alcohol present and besides this approximately 10 percent of its volume of ethyl alcohol of U. S. P. strength (or 9.5 percent of absolute alcohol). Provide for the tests:

1. "Ten percent alcohol," *i. e.*, a mixture of 1 volume of alcohol U. S. P. with 9 volumes of water.
2. A solution of potassium permanganate, 1 Gm. in 100 cc of water.
3. Diluted sulphuric acid U. S. P.
4. Ferrated sulphuric acid. Dissolve 0.030 Gm. of ferric-ammonium alum in 1 cc of distilled water and add to 100 cc of sulphuric acid U. S. P.
5. Solution of albumin (0.100 Gm. dried egg albumen dissolved in 10 cc of distilled water).

For a preliminary test, add to 1 cc. of the distillate 4 cc of diluted sulphuric acid and 2 cc of the solution of potassium permanganate. Complete decoloration of the solution will occur in a few minutes. Filter the mixture through a dry filter. (The filtrate should be quite colorless; if it shows any purple tint pass it repeatedly through the filter until this disappears.) To 1 cc of the filtrate add from a pipette, which delivers 30 drops to the cc, 10 drops of the albumin solution. Shake the mixture, add 1 cc of the ferrated sulphuric acid, and shake once more. In absence of methyl alcohol the solution will be golden yellow, the color remaining unchanged at least 10 minutes, and no further tests need be made. If the solution becomes instantly purple, the beverage is to be condemned as containing either methyl alcohol or something probably equally harmful.

The first thing naturally is to apply a confirmatory test, preferably that of Schiff (fuchsin decolorized by sulphurous acid or a sulphite). The test by morphine or apomorphine is available and readily made, since we have already an oxidized solution. Probably the best plan will be to distil in small fractions (say 0.2 cc) what remains of the filtrate, by aid of a simple tube condenser, testing each fraction by adding to it 1 drop of a 2 percent solution of morphine sulphate and underlaying with strong sulphuric acid. The first fractions will contain acetaldehyde, giving a "ring" of brownish color, but some one or more of the subsequent fractions will show the purple-blue ring characteristic of formaldehyde. I have not yet verified the statement that when apomorphine is substituted for morphine the interference of other aldehydes becomes comparatively negligible. I confess that I am skeptical about it.

Let us, however, assume that the color produced is really due to presence in the beverage of wood spirit, any other supposition being highly improbable. It remains to make an approximate estimation of the percentage of the poisonous alcohol in the sample. Prepare a standard which shall show the color produced in case the sample contains 1 percent (volume) of Columbian spirit. Add to 1 cc

of Columbian spirit 9 cc of the "10 percent" alcohol. Mix and add 1 cc of the mixture to 9 cc of the 10% alcohol. Oxidize 1 cc of the latter mixture just as described above, treat 1 cc of the filtrate with 10 drops of albumin solution and add 1 cc of ferrated sulphuric acid, to prepare the 1 percent standard.

Proceed now to match this standard color by increasing or diminishing the quantity of distillate taken, being careful to maintain an ethyl alcohol standard of 10 percent in every instance. For example, suppose the color obtained from 1 cc of the distillate is very much stronger than that of the standard. Mix 2 cc of the distillate with 2 cc of "ten percent alcohol," oxidize 1 cc of the mixture and test 1 cc of the filtrate with the albumin solution and ferrated sulphuric acid. The color may now approach so closely to that of the standard that no new tests need be made, the colors being matched by diluting one or the other of them with sulphuric acid diluted with an equal volume of water.

A preferable plan is that which I have practiced. Given a trial test resulting in a color considerably stronger than that of the standard, but not twice as strong; note the number of drops of the filtrate delivered by a 1 cc pipette—most likely about 35. Make new tests using, *e. g.*, 15 or 25 drops with water enough to make up 1 cc, adding the reagents and making new comparison with the standard.

Enough in the way of details. One important fact is to be kept in mind. In comparative tests let temperature conditions be as nearly as possible identical. The solutions to be mixed and the test-tube in which the mixture is to be made must be at room temperature, there must be no delay in making the mixture, and by no means any chilling of the contents of the tube.

Instead of mixing the fluids as in the foregoing directions we may make the tests as "ring tests;" there is no advantage in this except in cases where only traces of wood spirit are present. When the test made in the usual way shows only a slight change within 60 seconds from the normal golden yellow color, it will be found that 2–5 drops of the oxidized solution with 2 drops of albumin solution, underlaid with ferrated sulphuric acid, develops in a short time a fine violet ring which may persist some hours.

There is now on the market normal propyl alcohol, which is employed as a denaturant in one of the authorized formulas. I find that this alcohol produces with Hehner's test in all its modifications colors closely resembling those characteristic of methyl alcohol, only less intense. I find further that Schiff's reagent produces when propyl alcohol is present in the sample tested, a red color, less intense than that produced by wood spirit, and much less purple. In either case the color reaches a maximum intensity only after several hours, then fades slowly—more quickly when due to propyl alcohol than when caused by wood spirit. I am continuing an experimental study of this branch of the subject, as also differences in color tests with morphine, codeine and apomorphine.

LABORATORY OF
NELSON, BAKER & CO.,
NOVEMBER 1921

THE U. S. P. TEST FOR ACETONE IN ALCOHOL.*

BY JOS. W. E. HARRISSON.

Prohibition has by necessity produced many new denatured alcohols some of which have been termed medicated alcohol. Medicated alcohols, so called because of their adaptability to certain restricted medicinal uses, particularly bathing, generally contain some substance that will produce nausea if imbibed, or alkaloids of an intense bitter taste.

Occasionally acetone is encountered as one of the denaturing agents and during the examination of such a medicated alcohol it was noticed that the U. S. P. test did not give positive results though, undoubtedly, there was at least five percent of acetone present.

Further search showed the presence of a zinc salt as well, which was afterwards proved to be the interfering substance. Antimony and potassium tartrate, which is also a permissible denaturant, affects the test in the same manner, both salts apparently interfering with the action of the sodium nitroprusside which is very unstable.

Numerous tests advocated to establish the presence of acetone were tried in an endeavor to find one unaffected by the interfering metallic salts. Following is a résumé in tabular form of the results obtained:

	U S P. test.	Iodoform.	Vitali.	Chautard.	Denigès.
Alcohol, 95%	negative	negative	false	negative	false
Alcohol, 1% Acetone	positive	positive	false	negative	false
Alcohol, .2% Acetone	positive	positive	false	negative	false
Alcohol, .1% Acetone	negative	positive	false	negative	false
Alcohol, Acetone, Zinc Chloride	negative	positive	false	negative	false
Alcohol, Acetone, Antimony and Potassium Tartrate	negative	positive	false	negative	false

Alcohol containing one percent acetone and the amount of metallic salts required by the Internal Revenue Department was used for the latter experiments.

Upon consulting the table the iodoform test seems to have been the most satisfactory; this is essentially that of Gunning. A small amount of iodine test solution is added to five cc of the sample and then sufficient potassium hydrate test solution or ammonia water to nearly decolorize the iodine. No heat is used or a positive test will be obtained with pure alcohol.

A more satisfactory modification is to add one cc of potassium hydrate T. S. to five cc of the alcohol and then add iodine T. S. until colored slightly. In the presence of at least 0.25 percent acetone there will be an immediate precipitate of iodoform. Pure grain alcohol will gradually give a positive reaction.

The U. S. P. test may be satisfactorily applied if the sample is previously distilled.

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* Read before Scientific Section A. Ph. A., New Orleans meeting, 1921.

DRUG TOPICS.*

No. 6. Observations on Commercial Star Anise.[1]

BY M. H. CHOW.

Separation of Fruit into Seed, Carpel and Stem.—In order to ascertain the ratio of the several parts of the fruit as found in the drug market, samples of selected, perfect fruit, also of more or less crushed commercial drug, were carefully sorted, the separated parts weighed and the percentages computed. For the sake of a more ready comparison, the results are herewith tabulated.

No.	Weight of original material.	Weight (in grams) of Seed.	Carpel.	Stem.	Percentage of Seed.	Carpel.	Stem.
1	500 grams	80	420	0	16.0	84.0	0
2	500 grams	69	430	0	13.8	86.0	0
3	1200 grams	..	...	150	..	..	12
4	44 grams	6	37.5	0	13.6	86.2	0
5	100 grams	21	79	...	21.0	79.0	..

Samples Nos. 1, 2 and 3 were the ordinary run of the drug obtained from Sing Chong Co., Chinese druggists, 22nd St., Chicago, Ill. Sample No. 4 consisted of perfect fruits, partly from the Drug Cabinet of the University, partly selected from No. 3. No. 5 consisted of perfect fruit obtained from Lehn and Fink, New York City. W. Meissner,[2] who in 1818 made a general chemical survey of the drug, found 21.6 percent of seed and 78.4 percent of carpels (source not stated).

In addition three samples of five hundred grams each from Lehn and Fink were sorted for purposes of chemical study into stems, leaves and fruits. Of stems they yielded 2.4, 3.2 and 2.2 percent, respectively; of leaves 5.1, 2.4 and 1.8 percent, respectively; and of fruits 93, 94 and 95 percent, respectively.[3]

Moisture Determinations.—Because of the volatile oil content[4] the xylene method was given preference, yet the older methods were also tried if for no other reason than to reveal more fully their inaccuracy. With the use of but 10 grams of drug, the amount of water obtained was so small that the percentage of error became too great. Hence 25 grams of No. 80 powder were used in the experiments the results of which are herewith tabulated.

Expt.	Volume cc. of water collected. Seed.	Carpel.	Stem.	Percentage of moisture. Seed.	Carpel.	Stem.
No. 1	1.10	1.00	1.35	4.4	4.0	5.4
No. 2	0.90	1.40	1.40	3.6	5.6	5.6
No. 3	....	1.35	....	...	5.4	...
Average	1.00	1.25	1.37	4.0	5.0	5.5

In order to reveal the inaccuracy of the older method when applied to a volatile oil-yielding drug, the same materials were subjected to a temperature of from

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* From the Laboratory of Edward Kremers.

[1] Extracts from "A Chemical Investigation of Chinese Star Anise and Its Constituents," by Ming Heng Chow. A thesis submitted for the degree of Master of Science. University of Wisconsin, 1919.

[2] "Almanach oder Taschenbuch fuer Scheidekuenstler und Apotheker," 39, p. 1.

[3] See "Drug Topics" No. 2, JOUR. A. PH. A., 10, 272, 1921.

[4] Errors in gleaning or weighing or both must have crept in for the total of the weights of the parts amounted to 502.5 Gm. (100.10 percent), 498.0 Gm. (99.6 percent), and 495 Gm. (99 percent), respectively, in the three experiments. Mr. Chow has returned to China, hence his original notes could not be consulted conveniently.—E. K.

100 to 110° until of constant weight. The results in grams of the duplicate experiments are herewith tabulated:

	Seed.		Carpel.		Stem.	
	I.	II.	I.	II.	I.	II.
Original wt. of drug	2.4020	2.1164	2.0726	1.8924	3.0611	2.8347
Weight after drying	2.2354	1.9536	1.8946	1.7340	2.7991	2.5765
Loss of weight	0.1666	0.1628	0.1780	0.1584	0.1666	0.1528
Percentage moisture	6.93	7.69	8.05	8.37	5.44	5.39

C. E. Schlegel,[1] who in 1885 subjected the carpels to a proximate analysis by selective solvents, reports a loss of 10.36 percent of "moisture and volatile oil."

A comparison of results by the two methods is brought out in the following table.

	Xylene method, percent.	Drying at 100–110°, percent.	Difference, percent.
Seed	4.00	7.31	+3.31
Carpel	5.00	8.21	+3.21
Stem	5.50	5.41	−0.09

As was to be expected the seeds and carpel afforded appreciable differences according to the method employed, the stems practically none. By way of control it would be of interest to distil a large quantity of stems, if such were available, for volatile oil.

Finally, dehydration over sulphuric acid at room temperature was tried, weighings being made after one month and again after three months. The results of the determinations, in duplicate, on all three materials are again tabulated for ready comparison.

	Carpel.		Seed.		Stem.	
	I.	II.	I.	II.	I.	II.
Orig. wt. of drug	5.2984 Gm.	7.4767 Gm.	3.3700 Gm.	2.8946 Gm.	3.0618 Gm.	4.0192 Gm.
Wt. after 1 mo.	4.9220 Gm.	6.9827 Gm.	3.2126 Gm.	2.7258 Gm.	2.8620 Gm.	3.8206 Gm.
Loss of wt.	0.3764 Gm.	0.4940 Gm.	0.1574 Gm.	0.1688 Gm.	0.1998 Gm.	0.1986 Gm.
Percentage loss	7.10	6.61	4.67	5.83	6.52	4.7
Wt. after 3 mo.	4.9170 Gm.	6.9751 Gm.	3.2260 Gm.	2.7356 Gm.	2.8574 Gm.	3.8104 Gm.
Loss of wt.	0.3814 Gm.	0.5016 Gm.	0.1440 Gm.	0.1590 Gm.	0.2044 Gm.	0.2088 Gm.
Percentage loss	7.19	6.71	4.27	5.81	6.67	5.19

A comparison of the data recorded leads to the following conclusions:

1. That both the drying at about 100° and over sulphuric acid at room temperature yield results that are too high for the reason already indicated.

2. That the results for the seeds, however, differ in this respect from those obtained for both carpels and stems, namely, for the following reasons:

a. That whereas the loss of volatile oil with the water increases the apparent percentage of moisture according to the older methods;

b. The fatty oil content increases the weight of powdered drug (see weights after one and three months, respectively, in the above table) upon prolonged standing thus materially counteracting any loss in weight due to volatility of the substances constituting the so-called volatile oil.

Ash Determination.—In the first series of determination one gram of the powdered material was, in each case, heated in a crucible at a full red heat until the weight of the ash remained constant.

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[1] *Am. Journ. Pharm.*, 57, 426.

In computing the average, the first result, which is apparently too low, was rejected.

Expt.	Weight of ash, Gm. Carpel.	Stem.	Seed.	Percentage of ash. Carpel.	Stem.	Seed.
1	0.0459	0.0652	0.0255	4.59	6.52	2.55
2	0.0452	0.0658	0.0252	4.52	6.58	2.52
3	0.0457	0.0654	0.0252	4.57	6.54	2.52
4	.....	.....	0.0228	....	....	2.28
Average....	.....	.....	.....	4.56	6.55	2.53

In Experiment 4 the entire seed, not the powder, was incinerated. Oswald[1] in 1892 reports an ash content of 2.81 percent for the carpels and 2.46 percent for the seeds. Schlegel[2] reports 3.5 percent for the carpels.

In the second series of determinations the material was charred until it no longer gave off vapors. It was then lixiviated and the solution filtered through a quantitative filter. The filter plus the charred mass were heated to a high temperature until all carbon had disappeared. The residue remaining after this treatment was weighed and computed as water-insoluble ash. To it was then added the filtrate which was carefully evaporated and the residue heated to a dull red heat. The crucible was again weighed and the contents computed as total ash. The difference between total ash and insoluble ash was computed as water-soluble ash. The results of the duplicate determinations are herewith tabulated:

	Carpel. I.	II.	Stem. I.	II.	Seed. I.	II.
Weight of drug, Gm.....	2.0720	1.8924	3.0611	2.8347	2.0244	2.4020
Wt. of insol. ash, Gm.....	0.0595	0.0538	0.1494	0.1394	0.0454	0.0558
Wt. of total ash, Gm.....	0.1045	0.1929	0.2092	0.1908	0.0634	0.0728
Wt. of sol. ash, Gm.....	0.0450	0.0390	0.0598	0.0504	0.0180	0.0270
Percent of total ash.....	5.04	4.91	6.83	6.77	3.12	3.25
Percent of soluble ash.....	2.17	2.06	1.95	1.81	0.89	0.96

Comparison of these figures with the corresponding data of the first series show, as was to be expected, that the results of the total ash of the second series are somewhat higher than those of the first series.

Extractions.—In order to ascertain the extractive (fatty oil, volatile oil, etc.) for such solvents as ether, heptane and petroleum ether (58 to 60°) 30 grams of No. 100 powder were exhausted in a Soxhlet on an electric plate for about 48 hours or until a portion of the extract no longer left a residue upon evaporation of the solvent. The results of the duplicate determinations are likewise tabulated:

Solvent.	Seed. I. Percent.	II. Percent.	Carpel. I. Percent.	II. Percent.	Stem. I. Percent.	II. Percent.
Heptane.....	31.52	32.50	8.46	6.67	....	....
Ether.....	28.39	28.13	7.85	6.23	5.14	5.68
Petrol. ether.....	....	....	2.41	2.11	....	....

SOME CONSTITUENTS OF THE MOUNTAIN BALM.

BY J. W. HOWARD.

The Mountain Balm (*Ceanothus Velutinus*, Douglas) grows commonly on the mountainsides throughout the Rocky Mountain district. Coulter and Nelson[1*] have described is as "a smooth shrub 7–14 dm. high, growing in dense clumps or patches: leaves orbicular-elliptic or elliptical-ovate, obtuse at both ends, coriaceous, shining above (as if varnished) balsamic fragrant, lighter beneath and slightly pubescent, strongly 3-ribbed, 5–10 cm. long, on short stout petioles, persistent: . . "

[1] *Archiv. d. Pharm.*, 229, 84.

[2] *Am. Jour. Pharm.*, 57, 426.

* Numbers refer to Bibliography.

The Indians of this district use the dried leaves as a substitute for tobacco and medicinally as a tea.

Previous work has been reported on another species of this genus, *Ceanothus Americanus*, L. (New Jersey Tea) by Clinch[2] and Buckner[3] but none has apparently been done on this species. The use of the entire leaf, as described above, made a general analysis desirable as well as a determination of some of the constituents of the fragrant exudation.

EXPERIMENTAL.

In order to get a representative sample of the leaves, they were collected in large amounts in the early fall. After drying for one month at room temperature they were analyzed with the following results:

	Percent.
Moisture	6.19
Ash	0.385
Crude protein	9.475
Crude fiber	10.62
Petroleum ether (B. P. 40–60° C.) extract	6.73

The petroleum ether removed from the leaves the exudation, which when collected and dried was of deep brown color and had the general appearance of a wax. Its predominating odor was similar to that of compounds containing the cinnamyl group. The presence of such compounds is later proved by identifying cinnamic acid as one of the hydrolysis products.

It was also found that a volatile oil could be obtained directly from the leaves by steam distillation. On account of the apparently small content of the oil and the fact that it was removed as part of the petroleum ether extract, the use of the petroleum ether was found to be the more convenient method for its collection.

For the purpose of further study a large amount of the extract was collected. This was first subjected to steam distillation to remove the volatile oil. Considerable difficulty was experienced in removing all the oil from the extract. A small amount was later obtained after refluxing the residue with sodium hydroxide solution. This would indicate the probability of its being a decomposition product. The weight of the total yield was 2.69% of the weight of the extract. The following properties of the oil have been determined:

Boiling point	166–7° C.
Index of refraction at 25° C	1.4466

Further work is in progress to determine its other physical constants as well as its chemical nature.

After the removal of the volatile oil the residue of the extract was refluxed for 12 hours with an excess of sodium hydroxide solution. On cooling a copious precipitate of sodium stearate formed throughout the solution. This was filtered off and the stearic acid set free by the addition of concentrated sulfuric acid. The identity of the acid was established by the following facts: *Stearic Acid*, $C_{18}H_{36}O_2$, m. p. 69° C. After recrystallization from 95% alcohol it had a neutralization equivalent of 282 and m. p. 67–8° C. Elementary analysis gave the following results:

Calculated.	Found.
C = 75.98	75.86
H = 12.76	12.68

The weight of the yield was 17.69% of the weight of the extract.

The alkaline filtrate (from the sodium stearate) was steam-distilled and the distillate examined thoroughly for volatile products. None was found except the small amount of the volatile oil mentioned above.

The filtrate was then made slightly acid with hydrochloric acid. The mixture of cinnamic acid and resin, which precipitated as a result, was removed by filtration. The cinnamic acid was separated from the resin by boiling water and identified as follows:

Cinnamic Acid, $C_9H_8O_2$, m. p. 133° C. After two recrystallizations from water it had a neutralization equivalent of 147.2 and m. p. 132–3° C. Elementary analysis gave the following results:

Calculated.	Found.
C = 72.94	72.76
H = 5.44	5.41

It was further confirmed by the preparation of para nitro cinnamic acid (m. p. 286–7°) and ethyl cinnamate. The weight of the yield was 2.17% of the weight of the extract.

The exudation may be classed as a balsam inasmuch as a volatile oil, a resin, and cinnamic acid appeared as hydrolysis products.

The acidified filtrate was subjected to steam distillation, but no volatile substances were present. It was then evaporated to dryness and extracted with the usual alcohol-ether mixture. The extract appeared to be a mixture of resin and unsaponified matter. It was tested for glycerin with negative results.

SUMMARY.

(1) A general analysis of the leaves of *Ceanothus Velutinus*, Douglas has been made.

(2) The fragrant exudation of the leaves was extracted and found to yield a volatile oil, a resin, cinnamic and stearic acids on hydrolysis.

(3) The exudation was properly classed a balsam.

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(1) Coulter and Nelson, "A New Manual of Rocky Mountain Botany," p. 315.

(2) Clinch, *Am. J. Pharm.*, 56, 131, 1884.

(3) Buckner, *Am. J. Pharm.*, 63, 428, 1891.

CHEMISTRY DEPARTMENT, UNIVERSITY OF MONTANA,
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NOTE ON THE EMODIN CONTENT OF AROMATIC FLUID EXTRACTS OF CASCARA SAGRADA.*

BY E. O. EATON.[1]

The usual indication of cascara preparations is the presence of emodin. The test for emodin in a certain medicine known to contain a small proportion of a preparation of the type aromatic fluid extract of cascara sagrada, however, was negative. In order to learn whether or not such preparations would give this test, as it had been assumed they would, 10 samples of fluid extract of cascara and similar

* Published by permission of the Secretary of Agriculture.

[1] Bureau of Chemistry.

preparations were bought in the open market and two aromatic fluid extracts were made from identified dried barks, one collected in 1918, and the other in 1921. All of these preparations were tested in the following manner:

> Transfer 5 cc of the material to a separatory funnel with 50 cc of water. Make acid with hydrochloric acid and shake out with 50 cc of ether, wash the ether with water, and extract it with a few cc of 10% ammonia solution. When a brown coloration obscures the test, shake out the ether, which is yellow in the presence of emodin, with water, then with a cold saturated sodium bicarbonate solution, and discard the aqueous layer. Shake out the ether with 10% ammonia. A pink color in the aqueous solution indicates the presence of emodin.

Five of the commercial preparations and both preparations made from known barks gave distinct tests for emodin. Three showed only traces of emodin and two gave no indications of its presence. Apparently the age of the bark does not materially affect this test. Sodium bicarbonate, slaked lime, sodium and potassium hydrates, and mixtures of them and various other alkalies are now used by manufacturers to remove a bitter principle which causes griping.

The following tests were made on the samples which had showed the presence of little or no emodin, to ascertain whether they contained combined or glucosidal emodin.

Boil portions representing about 10 cc of the preparations with 10 cc of 2.5 N hydrochloric acid for about 10 minutes in a 200 cc Erlenmeyer flask with a funnel for a condenser, cool and treat as described under the test for emodin.

Its presence was indicated in all samples tested, although in comparatively small amounts.

The results of these tests would indicate that the drug analyst using the ordinary emodin test might fail to detect the presence of certain preparations of the type of aromatic fluid extract of cascara.

STUDENT BRANCHES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.*

BY C. B. JORDAN.

Every year the American Pharmaceutical Association makes an earnest effort to increase its membership and yet the growth of the Association is comparatively slow. The average retail pharmacist who has become engrossed in his business feels that, after he has joined the National Association of Retail Druggists, and his local and state associations, he has all the associations that he can afford. It is difficult to appeal to him to join the American Pharmaceutical Association because, as he says, he has all the journals that he has time to read and the efforts of the American Pharmaceutical Association to better his profession are a little too far removed for him to comprehend them.

I believe that the Association would make better progress if membership in it began while the young pharmacist was still in college. For that reason I wish to advocate the formation of student branches of the American Pharmaceutical Association.

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* Presented before Joint Session Section on Education and Legislation, A. Ph. A., A. C. P. F., and N. A. B. P., New Orleans meeting, 1921.

The national engineering societies have recognized the possibilities residing in the college student and have organized student branches of their association. These branches become feeders for the National Association because the student is brought in touch with the parent organization and realizes the benefits to be derived from membership in the same. After leaving college a goodly percentage of these student-members seek full membership in the national organization.

The American Institute of Electrical Engineering has student branches in practically all of the reputable colleges of engineering. Full membership in their national organization costs $15.00 but to student members the cost is only $3.00 per year. This membership entitles him to the Journal of the parent organization and to the privilege of wearing the badge of the national organization. He may hold student-membership for three years, after which he must join the parent organization or drop his membership.

The American Society of Mechanical Engineering has similar student branches. Full membership in this organization costs $15.00 a year, but student membership costs $2.00. This entitles the student to the Journal of the national organization and he is permitted to hold such membership for two years after graduation. At the end of this time, he must join the parent organization or pay $5.00 a year for the national Journal, or discontinue his connections with the national organization.

The American Society of Civil Engineering has been a little more conservative but has recently authorized the organization of student branches. Each student branch pays one membership fee and is entitled to one set of proceedings. The proceedings of the student branches may be reported in the national proceedings. Each student-member is issued a card, stating that he is a student-member of the American Society of Civil Engineering up to a certain date, the date at which his branch membership expires. While the connection of the student branches in the case of the American Society of Civil Engineering is not as satisfactory as in the cases of the American Society of Mechanical Engineering and the American Institute of Electrical Engineering, yet the college student forms at least a loose connection with the national organization.

I believe that Student Branches of the American Pharmaceutical Association, organized along the lines of the student branches of the national engineering societies, would be valuable feeders to our Association.

If the American Pharmaceutical Association were to authorize such student branches, charging the members the cost of the JOURNAL, say $2.00 a year, and permitting them to hold such membership for two or four years, I believe that many of such student-members would later become full members.

Many pharmacy colleges are so located that they do not have the privileges of the present local branches of the American Pharmaceutical Association, and the students do not come into intimate touch with our organization. Of course the teachers in these colleges bring our Association to the attention of the students but a much more intimate connection would be made if student branches were organized. Such branches would not, of course, have the privileges of our present branches, but each member would receive the JOURNAL and have a good working knowledge of our Association. At such branch meetings opportunity would be offered for instructing the college student regarding the activities of the national organization.

If the Section on Education and Legislation deems it of sufficient importance, I would be pleased to have the Section bring this subject to the attention of the Council of the American Pharmaceutical Association.

BETTER PROFESSIONAL TRAINING FOR HOSPITAL PHARMACISTS.*

BY E. C. AUSTIN.

The object of this paper is to bring to the attention of this Section on Education and Legislation the need of better professional training for hospital pharmacists and the need of training that is more closely adapted to their requirements.

The cause for complaint against the existing pharmacy courses is: that they are either so short as to render impossible the acquirement of more than a semblance of a real scientific education, or that too large a part of the work is devoted to studies other than those appertaining to hospital pharmacy.

Pharmacy exists in the hospitals as one department of a scientific organization known as the professional staff. By no stretch of the imagination can it be regarded as the independent profession that many profess to find in the retail stores. The bacteriologist, physiologist, clinician, pharmacist, pathologist, and numerous others, as members of this organization, work interdependently at their dual task of treating the sick and advancing science.

In the process of determining just what qualifications the hospital pharmacist should possess in order to serve his hospital and his profession to the best advantage, four outstanding facts should be held in mind:

(1) That the hospital pharmacist works with progressive and highly educated scientific men who are usually leaders in their own chosen field.

(2) That in order to coöperate intelligently with such men he must be, in some degree, familiar with their line of work.

(3) That his professional co-workers will not accept as a colleague any pharmacist who is not their intellectual equal or the recipient of an education that is on a par with their own.

(4) That only a man accustomed to the habit of study and possessing a mind trained to observe and think will be able to help solve the problems of curative medicine.

It is generally conceded that there exists in the minds of medical men a well-defined lack of confidence toward the pharmacist that seriously detracts from the value of the service which he renders to the physician. To enumerate all the reasons for this would be difficult, probably impossible. However, it is safe to say, that a disinclination on the part of the men entering pharmacy, to give sufficiently of themselves to their profession, has played its full part. Their reluctance to devote any considerable amount of time or money to preparation for their professional career indicates this. But, whatever may have been the cause, the remedy lies in better service to the medical profession through the medium of better educated pharmacists.

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* Read before Joint Session Section on Education and Legislation, A. Ph. A., A. C. P. F., and N. A. B. P. For discussion on related lines see Section on Practical Pharmacy and Dispensing A. Ph. A., New Orleans meeting, 1921.

As pharmacy's chief point of contact with the medical profession or, more particularly, that element of it which originates medical thought, is in the hospitals it would seem that through this channel, and with the aid of hospital pharmacists, professional pharmacy ought to make a determined and systematic effort to better its standing.

Through his association with the teachers of medicine and the staff, the interns and the medical students, the properly trained hospital pharmacist would be in a favorable position to greatly enhance the reputation of all pharmacy.

There is at present no real source from which the hospitals may obtain pharmacists who have been trained for hospital work. As a result the drug departments of a great many hospitals have deteriorated until they have become, in many instances, merely places where prescriptions and other extemporaneous preparations are put up. In many such hospitals the pharmacist is not considered a member of the professional staff. That which makes the situation more deplorable is the fact that such hospitals soon come to accept poor service or, at best, limited service from the pharmacist as a matter of course, and lose all conception of what a really proficient hospital pharmacist should be like.

It goes without saying that the profession of pharmacy, as well as the hospital, is the loser wherever this condition prevails.

In spite of a desire on the part of the hospitals to secure capable pharmacists it is difficult for a hospital executive to decide what qualifications a hospital pharmacist should have or which one of the candidates for the position has them, as there are no standards for him to go by, that are applicable to this particular line of work.

Because of this lack of qualified men and of accepted standards, it would seem to be the duty of the profession for its own future welfare and the welfare of the hospitals to provide, through its colleges, a class of properly trained hospital pharmacists; and the duty of a society of hospital pharmacists to urge, through the hospital executives and the organization of the American Hospital Association, the employment of these men by the hospitals, as openings occur.

The exact educational requirements for such a class of men should be specifically recommended only after judicious inquiry, but in a tentative way it may be said that prospective candidates for a position as hospital pharmacist should be required to complete, at the minimum, a four year college course leading to the degree of Bachelor of Science in Pharmacy. This course should be so arranged in the interest of hospital pharmacy, as to include careful instruction in those cultural subjects which produce breadth of view and refinement; in those which are basic or fundamental in the two sciences of medicine and pharmacy; and in those that are of a pharmaco-medical character, such as biochemistry, bacteriology, serology and immunology, alimentation and physiology, pharmacology and practical therapeutics.

It can be readily understood that the instruction in these subjects should be as complete as that given in the "Class A" medical schools.

The work should be so arranged that the students can acquire their practical experience in the drug department of some large teaching hospital as a part of their college work, and in lieu of the practical experience usually obtained in the retail stores.

In its essentials, a course such as the one briefly outlined here is a combined academic and professional course, such as is usually completed in five college years of eight months each. The hospital year is approximately eleven and one-half months. By utilizing the summer months to work off the requirements in practical experience it should be possible to reduce the total length of the course to four calendar years. It would seem advisable, however, to limit the credit allowed for practical experience to that amount which the requirements of the position would justify. This, in all probability, would not be more than one-fourth of the total credit hours required for the degree.

It is possible that this amount of college training may be deemed excessive by a good many pharmacists. For the benefit of these, attention is directed to the fact that the educational requirements outlined herein are equal to no more than two-thirds, at most, of those now required of the professional men with whom the hospital pharmacist works, and that they are but little more than equal to those required in the university nursing schools.

TEACHING IN THE HOSPITAL PHARMACY.*

BY CLARISSA M. ROEHR.[1]

The modern hospital is built to serve mankind—to alleviate pain, to cure disease, and should not be considered a commercial enterprise. A spirit of co-operation should permeate the institution. The very nature of medical work calls for the highest the worker can give. It matters little whether the hospital is connected with a college of medicine—the same opportunities exist from a teaching viewpoint. The size of the hospital would naturally affect the amount of work. The financial phase should always be kept second to that of helpfulness.

It is the purpose of this paper to briefly outline the work in a hospital pharmacy, and to suggest the possibilities such work would show in the teaching of students.

The work is systematically divided into three sections; namely, manufacturing or laboratory, dispensing and administrative.

The laboratory of the hospital pharmacy must be spacious and well lighted. Supervision of students in the laboratory is a responsible task as the preparations are made in large quantities and are afterward used in the various wards and clinics. In the laboratory of a college such small quantities are made, often lacking in uniformity, that the work seems impractical. As medicine and pharmacy are both expensive branches, continued practical experience, even after graduation, is the only solution for complete training. It is not my intention to criticize college laboratory work but rather to suggest supplementary practice.

The average hospital could furnish full time employment to not more than two workers, and a supervising pharmacist could look after scarcely more than five students. Student workers should be compelled to show high school graduation and preferably graduation from a recognized school of pharmacy before seeking employment in a hospital pharmacy. It is a question whether a student should be encouraged to seek experience before his college course or whether the practical

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* Read before Section on Practical Pharmacy and Dispensing A. Ph. A., New Orleans meeting, 1921. For discussion see Minutes of the Section, November JOURNAL.

[1] Chief Pharmacist University of California Hospital.

work should follow. If one, contemplating the study of pharmacy, has the opportunity to work in a hospital pharmacy, then he has the chance to know little of the practical side of his future work.

The size of the institution, the scope of the work, the wholehearted interest of the supervising pharmacist, the coöperation of the hospital administrative staff—all will have an important bearing on the amount of teaching that can be accomplished by the hospital pharmacy.

The tools of the workman are very important. Therefore the pharmacist will be seriously handicapped if his laboratory lacks equipment. As a rule, the institution will gladly furnish the necessary equipment, for it is a comparatively easy matter to show that the apparatus will pay for itself in a short time. Our apparatus for preparing Dakin's solution, though seemingly an expense at first, has paid for itself over and over again. Likewise our ointment machine, capsule-filling machine, our triturate mould, our electric oven, our blast flame all are essential and the purchase of them has been an economy. Flasks, beakers, evaporating dishes, burettes, pipettes, one- and ten-cc syringes for ampul work, hydrometers, granite-ware utensils, all these are necessary to carry on regular work.

An inexperienced worker should be shown the correct methods of manufacturing—the desire to make a preparation absolutely correct should be the aim—and he should be given the best equipment the institution can afford. An experienced worker is better able to devise extemporaneous methods. As the student advances a desire for research work should be encouraged.

Many students are prone to belittle the value of manufacturing; the average "druggist" prepares very few of his preparations. I believe that there always will be work for the laboratory pharmacist who will coöperate with the research medical man in solving his problems. In rural districts where the pharmacist must depend on his own stock, he often can economize by turning some into pills, tablets, or tinctures, provided he has the technic and the apparatus.

The University Pharmacy also uses homeopathic preparations and this gives the student an opportunity to become familiar with homeopathic practice.

After the student has gained a certain degree of proficiency in the laboratory he advances to the dispensing room. Often dispensing seems very simple, sometimes only pouring out 120 cc of elixir of sodium bromide, 250 cc Dobell's solution, and it is simple, if the dispenser has had the proper laboratory training. It is imperative that he knows the ingredients of these preparations and the nature of the medicines he is handling. The chief pharmacist must supervise all of the work. Containers are checked, then put in place. Even in the filling of ward supplies, the containers are not put away until the work is fairly completed. The counters look a bit crowded but it gives me a chance to see what has been taken out, and any mistake can be rectified quickly. One disadvantage in our dispensing is the speed with which we are compelled to work. A student should never be rushed in his prescription work.

Administrative work comes last and consists of reports to executive officers—covering the personnel of the department, arrangement of the work, adjusting complaints, stock records, price cards and system of pricing, formula card index, business correspondence and suggestions for general improvement. This division

of the work should take care of the financial standing of the pharmacy, and the office, which connects with the dispensing room, should contain files, reference books, pharmaceutical journals, a desk and a typewriter.

Just as the hospital pharmacy can be helpful to the pharmacy student, so it can also be of service to the student in medicine. The two lines of study should work hand in hand—each one with its own problems—but these more easily solved by coöperative effort.

Some six weeks ago one of the medical students brought his freshly dried, California-grown digitalis leaves to us to make a tincture so he could test them physiologically. In fact he did the work under our supervision and it occurred to me that a little practical pharmacy would be useful to every medical student. However, it is a waste of time if the student shows no enthusiasm in his work.

With the community in general, teaching can also be accomplished. This requires the greatest diplomacy and tact for we deal with irritable people, people who are ill. We try to teach the people that medicines should be refilled only when ordered to be refilled by their physician, that judgment should be used in the giving of medicines—a medicine that has helped you may not be the correct one for your neighbor. The university hospital has rules on these points and we follow them implicitly. The patients are always referred to the physician before the prescription is refilled.

To sum up—the pharmacy of a hospital is a good place to teach correct principles of pharmacy. This teaching can be made to help not only the student in pharmacy, but also the student in medicine, and indirectly the general community.

THE STATUS OF CLINICAL SERVICE AS A PHASE OF PHARMACEUTICAL SERVICE.*

BY JOHN C. KRANTZ, JR.

During the past decade the pharmacists of this country have watched with increasing curiosity the ever-growing commercial phases of the retail drug store. To those pharmacists who are inclined to like the buying and selling of merchandise rather than the filling of physicians' prescriptions, this metamorphosis of the drug store was rather agreeable and profitable. However, to the college-trained, profession-loving pharmacist, this condition not only discouraged his hope for an ethical pharmacy but seemed to defeat the very purpose of his professional education.

In more recent years, especially since the close of the great war, men have not entered professional schools in a haphazard and careless manner, but they now carefully consider the outlet for the product the school produces and how, having once obtained the education, it can best be used to serve his fellow-man and sustain his own livelihood. In pharmaceutical training this presented a singular poblem: was the embryonic pharmacist to spend his money and time in college to receive a professional education and then to expend ninety-three percent of his after-life doing commercial work? However, the large majority are still con-

*Read before Section on Practical Pharmacy and Dispensing A. Ph. A., New Orleans meeting, 1921.

tent with this great extravagance of time and wasting of professional training, but it is the ethical youth, the probable five percent from each graduating class in pharmacy, who are not satisfied with this condition but seek to put into practice their attainments from hard work at college.

The question now arises, is there any phase of pharmacy, as practiced, sufficiently professional in character to warrant the attention of these men with truly ethical ambitions? In practical experience the question has been answered in many ways. Some have studied medicine, others have gone higher into chemistry, whereas others have gone into the laboratories of manufacturing pharmacists. However honorable and attractive these mentioned vocations might appear, no matter into which the individual enters, to the laity he loses his identity as a pharmacist.

There have been certain men with sufficient courage and red blood in their veins to undertake the tremendous task of revolutionizing the retail drug store and establishing for themselves a position in the community of professional standing. This, to the author's mind, is the real solution of the problem and an excellent outlet for the ethical five percent of the graduates in pharmacy.

Pharmacists with sufficient initiative have undertaken the establishing of prescription pharmacies, which however ethical in character have never been found to yield even a moderate compensation for the effort put forth. The pharmacist must seek other fields, and here lies open before him the great promising field of clinical service into which the well-trained man enters, who shuns commercialism as the path of least resistance into which his brother druggist has fallen. The questions likely to come to the readers' minds are: What is meant by clinical service? With which part of the service is a pharmacist familiar? Does it yield sufficient pecuniary returns? How may a pharmacist secure a practice of this character? It is the purpose of the author to briefly answer these several questions, hoping the advantages as emphasized may act as a stimulus to pharmacists to participate in clinical service.

Clinical service, in its broadest meaning, embraces anything done to expedite the recovery of the sick, whether at the bedside of the patient or at the laboratory of the clinician. The pharmacist, in the daily routine of filling prescriptions, truly renders valuable clinical service, but his rôle is not large enough. There are others who are rendering the major part of this service and in consequence are receiving the larger financial returns. For example, the clinicians in a large hospital examine daily the urine of hundreds of patients and are rendering other clinical service which could be rightfully claimed by the well-trained pharmacist as a chemical procedure with which he is familiar.

This phase of clinical service is not only practiced in the hospitals but forms an important part of the modern practitioner's diagnosis. Recently a physician of no little eminence in Baltimore remarked that under no condition would he allow a patient to be discharged from his care until a complete analysis of the urine had been made. Now assuming this physician examined ten patients daily, and his neighboring pharmacist filled the ten prescriptions he had written at an average price of seventy-five cents each, he would have made on the several transactions a net profit of five dollars. Were the same pharmacist equipped to make the complete urine analysis of the same ten patients he would have collected a minimum fee of three dollars each which is practically clear profit. His compensation would

have been thirty dollars additional, or an increase of six hundred percent. The case cited is only theoretical; however, in practice, those pharmacists engaged in such work will testify to the increased financial return gained by such service.

The examination of urine, however, is only a small branch of a large field of important work. All reputable pharmacy schools give thorough courses in bacteriology and the pharmacist of to-day with very little additional effort can equip himself to do commercial bacteriological work. Such work would naturally include the examination of urine, milk and water for micro-organisms, the isolation of pathogenic organisms in sputum and other body fluids, and other miscellaneous work, such as the preparation of sterile media, etc. This is a tremendous field for work of a truly professional character. The author knows of a pharmacist residing in Maryland, who, immediately after announcing his intention to do such work, secured the task of examining the entire water supply of a railroad, which yielded excellent monthly returns. This is but one instance of success in this line of work, and there are others sufficiently numerous to render it an attractive field for the well-trained graduate in pharmacy.

Another branch of clinical service can be easily inaugurated in the profession of pharmacy by the pharmacist making direct use of the chemical training he has received. The modern physician is a great user of standard solutions and other chemical reagents. These can be supplied very conveniently by the pharmacist, and in so doing he enhances his professional reputation and increases his monetary return. Not only can the pharmacist render chemical service to the physician but the laity will not be slow to learn of an innovation of this character in a pharmacy, and he can render to them chemical service in several of its minor branches.

Some advocates of clinical service in pharmacy have urged the pharmacist to enter into the work more fully and to do such service as the Wassermann test, blood count, separation of groups for blood transfusion, etc. In the author's opinion this class of service does not belong in the hands of the pharmacist, since one who is not medically trained cannot appreciate the clinical importance of such tests.

Finally, the great problem arises as to how the retail pharmacist may establish such a business as herein described. It can be done in many ways: First, by sending circular letters to physicians and other reputable citizens announcing the participation in such work; second, advertising in the drug store; third, creating a professional atmosphere in the pharmacy, and, lastly, by adequate preparation and equipment.

When one resorts to these means he seldom fails in establishing a professional business doing clinical service as a phase of pharmaceutical service, and thus solving the problem of professional standing of the American pharmacy.

PHARMACY DEPARTMENT,
UNIVERSITY OF MARYLAND.

THE PHARMACIST IN THE OUT-PATIENT DISPENSARY.*

BY FERDINAND P. SILBER.

Having never had the opportunity of visiting other hospitals or dispensaries, I am, of course, not qualified to speak of hospitals and dispensaries in general, but will limit myself to a brief description of the work conducted in the Out-Patient department of the Cincinnati General Hospital.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., New Orleans meeting, 1921.

Although the Out-Patient Dispensary is located in one of the buildings of the hospital, it is not, strictly speaking, a department of this hospital, but a department of the Medical College of the University of Cincinnati.

The Out-Patient Dispensary is conducted primarily for the benefit of the poor of Cincinnati and vicinity. Here they receive free treatment; paying only the actual cost of the medicine prescribed for them, and, when necessary, pay a small fee for X-ray plates, Wassermanns, etc.

We have, of course, a small number of charity patients to whom we furnish medicines without cost. These cases are investigated by the Social Service Department of the dispensary.

The work in the dispensary is done by our pharmacist (myself) and consists chiefly in compounding the prescriptions for the patients of the dispensary. Almost all supplies, such as fluid extracts, elixirs, ointments, chemicals, etc., are bought on requisition through the City Purchasing Department. However, I do manufacture some of them myself in case of emergency. I also make up my own tinctures, solutions, special formula preparations, etc. Our prescriptions are not limited to a few numbered stock preparations, but are about as many and as varied as those encountered in any busy prescription pharmacy.

However, to facilitate handling and to save time, I keep on hand saturated solutions of the iodides, bromides, salicylates, etc., as I have from twenty-five to thirty-five prescriptions to fill during the two clinic hours each morning and about the same number in the afternoon.

In addition to this, I am also Instructor in Pharmacy to the students of the Medical College, a certain number of junior students being assigned to the drug-room during the morning clinics each day.

The advantages of the hospital and dispensary pharmacist as compared to the retail pharmacist are many. The salaries, in almost every instance, are equal to, if not greater than those of the average retail pharmacist, while the hours are usually much shorter, the Out-Patient Department generally being closed on Sundays and holidays. To be privileged to labor in this highly professional atmosphere is, in itself, a distinct advantage, as well as an inspiration to higher professional ideals.

Permit me, in this connection, to offer a few suggestions to those pharmacists who believe that pharmacy is a profession and is entitled to recognition as such:

The only way in which this can be accomplished is by increasing the standard of education for pharmacists to the level of other professions. The colleges of pharmacy should, for instance, include in their curricula thorough and complete courses in bio-chemistry, bacteriology and serology, including the Wassermann technic, blood chemistry, urinalysis, etc.

The pharmacist has been called the physician's helpmate. Endowed with this highly professional training, he would be, indeed, enabled to take his place as such.

CINCINNATI, OHIO.

LIQUOR SODAE CHLORINATAE.*

IMPROVED PROCESS.

BY S. L. HILTON.

Chlorinated Lime	100.0 Gm.
Sodium Carbonate (Anhydrous)	50.0 Gm.
Sodium Bicarbonate	100.0 Gm.
Water, a sufficient quantity to make about	1000.0 cc

Add the chlorinated lime to 500 cc water contained in a closed container of at least 1500 cc capacity; shake well repeatedly, and allow to stand for at least 12 hours. The sodium salts are added to 500 cc of water, dissolve and allow to stand 12 hours. Shake the lime suspension and gradually add the solution of the sodium salts; shake well, if the mixture becomes gelatinous warm gently until it begins to liquefy, and allow the solution to stand until the precipitate completely settles.

Decant the clear liquid and filter through paper, when all has passed through the filter transfer the precipitate to the filter, and when it has completely drained wash the precipitate with enough water to obtain about 1000 cc. Assay the liquid obtained by filtration and dilute with the washings so that the finished product will assay by the process hereafter given 2.5 percent of sodium hypochlorite. If, however, it is desired to express the result in active or available chlorine, the number of cubic centimeters of tenth normal solution of sodium thiosulphate used multiplied by 0.003546 and this result multiplied by 50 will give the amount of active chlorine. Personally, I much prefer to express the result as sodium hypochlorite instead of as expressed in the U. S. P. IX, available chlorine, for the reason that it is a solution of sodium hypochlorite and not a solution of free chlorine.

ASSAY METHOD.

Measure exactly 2 cc with a chemical pipette into an Erlenmeyer flask of about 200 cc capacity and dilute with 50 cc of distilled water, add 2 Gm. potassium iodide and 2 cc acetic acid, mix thoroughly, stopper the flask and allow to stand for 15 minutes. Carefully remove the stopper and rinse the stopper and the sides of the flask with distilled water, then carefully add tenth normal sodium thiosulphate volumetric solution; when the solution has assumed a pale yellow color add a few drops of starch test solution and reduce the flow of the sodium thiosulphate solution to drops, constantly shaking, until the blue color of the liquid is just discharged. The number of cubic centimeters of the tenth normal volumetric solution of sodium thiosulphate used multiplied by 0.003723 and the result by 50 will give the weight of sodium hypochlorite contained in 100 cc of the solution.

The advantage of this process must be self-evident; the finished solution is neutral or should be neutral to powdered phenolphthalein; if not so, an additional amount of sodium bicarbonate should be added until the solution is exactly neutral.

The solution is neutral instead of alkaline, consequently non-irritating, and when used for technical purposes, removing stains or bleaching, is very hard on fabrics, often destroying them.

It is five times the strength of the Carrel-Dakin solution, and can be readily used for making this solution simply by diluting one part with four parts of distilled water.

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* Read before Section on Practical Pharmacy and Dispensing A. Ph. A., New Orleans meeting, 1921.

It further has the advantage that if kept in amber containers, in a cool, dark place, it has remarkable keeping qualities, far in excess of the present official solution. Sample herewith submitted was made November 5, 1919, assayed 2.59% and when set aside the bottle was but two-thirds full. May 20, 1920, assayed 2.37, and May 17, 1921, 2.179 percent of sodium hypochlorite and shows, in $2^1/_2$ years, about 16% loss of sodium hypochlorite.

With reference to the method of assay let me point out that it is much more simple than the present official method for the reason that the present method directs taking about a definite volume and accurately weighing it; the average pharmacist is not equipped with an analytical balance and is unable to make such a weighing; if he uses an ordinary prescription balance the result will be no more accurate, and possibly not as much so, than by using an accurate chemical pipette; further, one of the principles of the U. S. Pharmacopoeia—solids by weight and liquids by measure—leads me to make the suggestion that the formula should make one thousand cubic centimeters instead of one thousand grams, and the assay should likewise represent so many grams in so much liquid by volume.

The above is respectfully submitted as a suggestion to the Committee of Revision, U. S. Pharmacopoeia.

ODDS AND ENDS.*

BY W. WILSON McNEARY.[1]

In making solution of mercuric chloride in any strength, it will be found that sodium chloride assists as a solvent quite as well as ammonium chloride, and is much cheaper. Five pounds of mercuric chloride will dissolve in about a gallon of water with the aid of five pounds sodium chloride.

In drying hypodermic tablets that tend to discolor in light when moist, such as morphine and eserine salts, place them in a cardboard box previously dried in a hot air oven while the box is still hot, and cover with lid; they dry quickly and remain white. To prevent hypodermic tablets from sticking to the moulds, fan the plate with a piece of cardboard for a few moments before pressing out; they drop off without trouble.

A prominent skin specialist desired, for an affection covering the entire body, a non-greasy application to carry curative agents, such as resorcin, phenol and boric acid, which could be easily applied and easily washed off in the bath. The following was supplied and answered the purpose:

Powdered tragacanth, 1 ounce
Alcohol, sufficient to moisten
Glycerine, 1 ounce
Water, q. s. to make one pint

So many pharmacists continue to use the dirty paste pot and brush when a very handy outfit can be made by fastening a piece of cheesecloth, with a rubber band, over the lid of a jar filled with mucilage, and inverting same in an ointment pot. It is always ready to use. Discard the filthy paste pot and brush.

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* Read before Section on Practical Pharmacy and Dispensing A. Ph. A., New Orleans meeting, 1921.

[1] Chief Pharmacist Graduate School of Medicine, University of Pennsylvania.

A clerk spilled some glucose on the cellar floor and did not clean it up; next morning four mice were found asleep in it. About as cheap and harmless (except to mice) as anything else. Remarks unnecessary.

Try making medicated waters by agitation, using half the amount of volatile oils specified by the Pharmacopoeia.

Dakin's Solution.—Instead of making the finished product daily, prepare a concentrated solution, say about five times the usual strength. Correct the alkalinity with 10% HCl. Keep in dark bottle, in a cool place, well stoppered, and dilute to required strength by titration as needed. You will be surprised to learn how the concentrated solution keeps. In hospitals the concentrated solution is very useful for cleaning bed pans and as a general deodorant and disinfectant.

To deodorize Tincture Valerian or Asafetida use bitter almond water or a very small amount of benzaldehyde. The effect is surprising.

To prevent frothing in mixtures containing fluidextract of cascara sagrada and sodium bicarbonate, add a few drops of sodium hydroxide solution to the fluidextract.

To produce a smooth scarlet-red ointment, rub the scarlet-red with a few drops of mineral oil before incorporating with the base. The same method is applicable to mercurophen.

When ampuls of neoarsphenamine in oil are prepared the oil should be sterilized and allowed to cool, and the neoarsphenamine incorporated in a sterile mortar and introduced into the ampuls. Avoid heating neoarsphenamine as a poisonous compound results. These ampuls should be prepared immediately before using, as the arsphenamine forms a cake on standing, and cannot be reincorporated by shaking.

Caroid decomposes sodium cacodylate. They should be dispensed separately.

PHARMACEUTICAL EVENTS IN 1821.

BY OTTO RAUBENHEIMER.

In conformity with my former contributions I have classified these Pharmaceutical Events of a Century Ago as follows:

COLLEGES AND UNIVERSITIES FOUNDED.

The first College of Pharmacy in the United States, namely, the Philadelphia College of Pharmacy, was established and a systematic course of lectures was given. This most important pharmaceutical event was duly celebrated by a Centennial in February and June 1921.

The University of Virginia was also founded, and the 100th anniversary was celebrated from May 31 to June 3, 1921.

The Kings County Medical Society in Brooklyn, N. Y., was established.

McGill College and University founded at Montreal.

The University of Pennsylvania confers—only for a short time—the degree of Master of Pharmacy—the direct cause of the foundation of the Philadelphia College of Pharmacy.

Liebig goes to Paris to study under Gay-Lussac and work on Fulminates. Schönbein, of nitrocellulose and ozone fame, enters the University of Tübingen. Heinrich Rose graduates at the University of Kiel.

A. A. Meckel, of Halle, is elected professor of botany and forensic medicine at the University of Berne. Eilhard Mitscherlich joins the celebrated Berzelius at the University of Stockholm to pursue his inquiries on the connection between crystalline form and chemical composition. Mitscherlich in the same year succeeds Klaproth as professor of chemistry at the University of Berlin.

Friedrich Woehler, under the influence of Gmelin, deserts medicine for chemistry and goes to the laboratory of that distinguished chemist at Heidelberg.

Pereira studies pharmacy and chemistry in London.

Heinrich Robert Göppert, an apotheker's son, and later the founder of the first pharmaceutical institute connected with a university, that of Breslau, studies medicine in Breslau and Berlin.

Alexander Bunge, the celebrated Russian botanist, graduates from high school and enters the University of Dorpat.

Daniel Drake is appointed Professor of Medicine in the College of Ohio.

Nathan Smith establishes the Medical Department at Yale.

Ernst Heinrich Weber becomes Professor of Anatomy and Physiology at the University of Leipzig.

The Pharmacy Section of the French Académie de Medicine in Paris (established 1820) elects six new "titulary" members: Caventou, Clarion, Boudet, Cadet, Laubert and Derosne.

INVENTIONS AND DISCOVERIES.

Faraday prepares Ethylene di-iodide by the action of sunlight on Ethylene and Iodine.

Doebereiner isolates aldehyde-ammonia and determines the relation of acetic and oxalic acid to alcohol.

C. Schlippe discovers Stibio-Natrium Sulphuratum, the double salt which still bears his name.

Lassaigne and Feneulle isolate Cathartin from Senna leaves and Winckler from Buckthorn berries.

Desfosses isolates Solanin.

Pelletier and Caventou and also Robiquet isolate Caffeine, which base was already discovered in 1820 by the German apotheker Runge, a fact which is frequently forgotten.

Pelletier and Caventou discover Acide Quinovique, as one of the constituents of Cinchona. It was isolated from the bark of China Nova, in which it occurs combined with lime.

Henry and Caventou isolate Gentianin.

Rose prepares Titanium Oxide.

Iodine is found in brine from springs in Germany.

Coindet introduces successfully Potassium Iodine as a remedy against goitre.

Fraunhofer brings forth the theory of undulation.

Fresnel gives birth to the theory of double refraction.

Faraday begins his classic work on the theory of electricity and electromagnetism.

Peschier isolates Polygalic Acid from Senega Root.

EDUCATIONAL EVENTS.

Cagniard de la Tour noticed that many gases could not be liquefied above a certain temperature by any pressure.

Mitscherlich discovers dimorphism and polymorphism, and thereby reconstructs the science of crystallography.

Dulong discovers Specific Atomic Heat.

Seebeck notices Thermo-electricity.

Berzelius begins his classic work on the System of Atomic Weights.

Reichenbach establishes a chemical plant in Blansko, Moravia, for the destructive distillation of wood, which led to his discovery of Creosote in 1830.

Iodine Spring was discovered at Salt Sulphur Springs, W. Va.

Indian Springs, Georgia, together with 1000 acres of land, was excepted from a cession of the Indians.

Woehler discovers that by burning $Hg(CNS)_2$ the so-called "Pharaoh's Serpents" are evolved.

Hofschläger isolates Delphinic Acid from Stavesacre, said to be crystalline and volatile.

Payen and Chevallier distil Oil of Hops.

H. B. Kunth names the plant, which furnishes Guarama, *Paullinia Cupana*, discovered by Humboldt and Bompland on the river Orinoco.

Bishop Agardh divides rootless plants into Algae, Fungi and Lichens.

Apotheker Wilhelm Meissner at Halle originates the word "Alkaloid."

Croton Oil is imported from India to England and enters the European materia medica.

The traveler Perrottet brings Resin of Elemi and living specimens of the tree from Manila to Paris, and Maujean, a French pharmacien, found two resins, one soluble in cold and the other in hot alcohol.

Buchu, namely *Barosma crenulata*, was first imported by the drug house of Reece & Co. of London. It was introduced to the medical profession through R. Reece in *Monthly Gazette for Health*, February 1821, 799.

BORN IN 1821.

PHARMACISTS AND CHEMISTS.

Theodor Poleck, the successor to the celebrated Duflos, at Breslau, Germany.

Otto Ziurek, the Berlin Apotheker, who in 1858 founded the first private chemical institute.

Edward Livingstone Youmans, American chemist.

Andreas Georg Staedeler, the Hanover apotheker and professor.

Lawrence Turnbull, Scottish-American chemist and physician.

James Sheridan Muspratt, Irish technical chemist, who studied under Liebig and who is the author of a master work on applied chemistry.

BOTANISTS.

In 1821 four celebrated botanists were born, namely, Nils Johan Andersson of Sweden; Julius W. Wigand and Fritz Müller, both of Germany; Robert Bentley, well-known English botanist, teacher and author.

PHYSICIANS.

Elizabeth Blackwell, first woman M.D. in the United States.

William Paine, American physician and editor.

George H. Taylor, American physician and inventor.

Francis Minot, American physician and writer.

John Fox Hammond, American physician.

Elias Samuel Cooper, American surgeon.

Franz von Leydig, German physician, professor of anatomy and naturalist.

SCIENTISTS AND OTHERS.

James Croll, Scottish physicist.

Rudolf von Roth, German orientalist.

August E. Mariette, French Egyptologist.

Samuel Eliot, American editor and author.

Nathan C. Webster, American editor and inventor.

Samuel Wetherill, American inventor and soldier.

George S. Appleton, American publisher.

Charles Robert Ingersoll, American statesman.

Perhaps the most noted born in 1821, having a great influence on physics, chemistry, pharmacy, medicine, biology and other sciences, are Hermann von Helmholtz, German physicist and physiologist, and Rudolf von Virchow, German pathologist. *The Scientific Monthly* for July 1921 contains excellent biographies of both of these scientists.

DIED IN 1821.

PHARMACISTS AND CHEMISTS.

Charles Louis Cadet de Gassicourt, celebrated French military pharmacist.

Carl Wilhelm Juch, German pharmacist and chemist, who published the first commentary on a pharmacopoeia, namely, the Ph. Borussica II, in 1805.

Franz Carl Achard, a pupil of Marggraf, German chemist, who in 1796 established the first beet sugar factory.

François Tingry, a student of Rouelle. Tingry became professor of chemistry and natural history in Geneva.

BOTANISTS.

Anders Johan Retzius of Sweden.

Louis Claude Marie Richard of France.

PHYSICIANS.

Jean Nicolas Corvisart, founder of the flourishing clinical school at the Paris Hospital La Charité. He was appointed professor in the College de France and member of the Academie des Sciences. Napoleon I created him baron and member of the Legion of Honor.

Eric Bollmann, Hannoverian physician in the United States.

Samuel Bard, American physician and writer.

Timothy Childs, American physician and statesman.

Johann Peter Frank, a rare and happy mixture of German thoroughness and French intelligence, born 1745 in Rotalben, Palatinate (a countryman of the late C. Lewis Diehl and myself), became the founder of modern public hygiene by his master work "System einer vollständigen medicinischen Polizey," published at Manheim in 1777–88 by Schwann, the printer of Schiller's "Räuber."

And last, but not least, Lyman Spalding, whose name will or should live forever as the originator of the United States Pharmacopoeia.

POETS.

I must not neglect to mention the death of John Keats, who died of tuberculosis in Rome on February 23, 1821, on the very day when the Philadelphia College of Pharmacy was established. Keats was born in London on Oct. 29, 1795, and attended school in Enfield. In 1810 he was apprenticed to a surgeon at Edmonton and in 1815 he went to London to practice as a hospital pharmacist. In July 1816 he passed the examination at Apothecaries Hall, but shortly afterwards left pharmacy to become a poet.

BIBLIOGRAPHY.

Pharmacopoea Rossica, the Russian Pharmacopoeia.

Sir William Jackson Hooker: Flora Scotica.

F. Magendie: Formulairé, which introduced the alkaloids into therapeutics.

Schubarth: Vergleichende Nomenklatur.

A. B. Lambert publishes in London "An Illustration of the Genus Cinchona."

Ruiz and Pavon, two Peruvian botanists, between 1821 and 1826 wrote their *Nueva Quinologia*. This work, however, remained unpublished until it was purchased by John Eliot Howard, the English quinine manufacturer, who published it in London in 1862, folio, 163 pages and 30 beautiful colored plates. The illustrations of cinchona are taken from Pavon's specimens in the herbarium at Madrid together with 3 plates representing the structure of several barks.

Johann Peter Frank (1745–1821) published an important treatise on therapeutics, *i. e.*, "De curandis hominum morbis epitome," Vienna, 1792–1821.

The celebrated Magendie, whose name continues to live in pharmacy and medicine through Magendie's Solution of Morphine Sulphate, founded the first periodical devoted exclusively to physiology, *i. e., Journal de physiologie expérimentale.*

Jules Germain Cloquet begins the publication of his splendid atlas, *Anatomie de l'homme*, consisting of 5 volumes, illustrated with 300 folio plates.

Johann Friedrich Meckel of Halle, called the younger Meckel and the German Cuvier, the greatest anatomist in Germany before Johannes Müller, publishes (1821–30) his great system of comparative anatomy.

Apotheker Stoltze edits (1821–25) *Deutsches Jahrbuch der Pharmazie.*

Berzelius begins the publication of *Jahresberichte über die Fortschritte der Chemie und Mineralogie.*

Karl Johann Bernhard Karsten, the mineralogist, publishes *Metallurgische Reise.*

Jean Marc Gaspard Itard publishes his "Treatise on Otology."

Apotheker J. M. Schiller, of Rothenburg, the promoter of the idea of one Pharmacopoeia for entire Germany, writes a Treatise how Pharmacopoeias and Dispensatories should be improved.

The second volume of De Candolle's *Regni vegetabilis systema naturale* is published in Paris.

Varnhagen, of Schmalkalden, apotheker and book dealer, undertakes to publish an almanach with biographies of eminent pharmacists, chemists and physicians.

Taxe or price list for medicines in Darmstadt was published.

Already at this early date Apotheker Schmidt of Sonderburg calls attention to the practice that laboratories manufacture galenicals which should be prepared by the pharmacist himself.

James Cutbush, chemist and apothecary at 25 S. 4th St., Philadelphia, published his "Synopsis of Chemistry," which in alphabetical order contains chemical names, synonyms and definitions.

Charles W. Coindet: Nouvelles Rechurches sur les effets de l'io.'ine (Bibl. univ. de Genève).

Claudii Galeni Opera Omnia in 20 volumes by Dr. Carolus Gottlob Kuhn, a Latin translation of Galen's Greek masterwork.

CONCLUSIONS.

Let me hope that even this short or abbreviated paper will help to arouse more interest in the much-neglected study of the history of pharmacy. It is no credit to pharmaceutical education that this subject is not taught in our colleges, but it is to be hoped that with the introduction of longer courses and graduate courses, history of pharmacy will find a place in the curriculum. By numerous historical papers the author has been trying to prove that even a little knowledge of the history of his calling will be of benefit to the pharmacist. In his own retail drug business the author makes daily use of this knowledge and turns it into dollars. As an educator, the author knows from his own experience that history of pharmacy will instill love for professional pharmacy into the student and will strengthen this love in the mature pharmacist. Last, but not least, the American Pharmaceutical Association is to be complimented on the establishment of a Section on Historical Pharmacy, and the author, as one of its former Secretaries and Chairmen, continues to take an interest so as to make this "baby" Section a success.

A SIMPLE COSTLESS WATER-BATH.*

BY J. C. PEACOCK.

Recently during the course of some experiments made in test-tubes a very handy water-bath was made from an empty ether can as follows:

The soldered seam at the shoulder of the can was heated by revolving in a flame until the top and body of the can could be separated by prying. With pliers several slight crimps were next made in the periphery of the lid; and the latter then placed inside of the body of the can, being inverted on the bottom so that the neck by supporting the lid made a false bottom.

This arrangement gave a very suitable apparatus for holding the test-tubes in a nearly upright position, as well as protecting them from the danger of breaking through "bumping" during boiling of the bath.

Of course this appliance will serve in heating beakers, dishes and similar apparatus of proportionate size.

Should the neck of the can become detached while heating the solder, the lid may be placed upright in the body of the can, with practically the same adaptability to use.

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*Read before Pennsylvania State Pharmaceutical Association, 1921.

THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

A SYMPOSIUM ON METHODS OF TEACHING COMPOUNDING IN THE CONFERENCE SCHOOLS.

[Editor's Note: The Editor has in his possession a series of articles, written by men prominent in pharmaceutical education, descriptive of methods used in various schools in teaching the art and science of compounding. He believes the publication of these articles will be helpful to all teaching institutions and instructive to members of Boards of Pharmacy. The first two published will be those written by W. F. Rudd of Virginia, and F. J. Wulling of Minnesota.

RUFUS A. LYMAN,
Chairman Executive Committee
and Conference Editor.]

The School of Pharmacy at Richmond is an integral department of The Medical College of Virginia, a state-supported institution, with schools of medicine, dentistry and pharmacy and a hospital division operating three hospitals. For many years we have endeavored to correlate in every way possible the teaching in all of the schools, believing that the future of the health of our people is dependent upon the thorough education of and full coöperation among the members of these professions. The students in the three schools live together, are taught in the same laboratories and in many instances have the same teachers, though the classes are separate. Thus, early in life, each group comes to know the problems of the other groups, and a spirit of professional appreciation is engendered, which continues when the men go out into active practice.

The college buildings are situated in the heart of the industrial and poorer residential section of Richmond with its population of 171,000. The Medical School has therefore been able to build up a large and most successful out-patient clinic; at the present time, approximately 30,000 patients come to this clinic annually. The School of Pharmacy is able to utilize this for a prescription clinic, which we have come to regard as the most vital and in many ways the most efficient part of our teaching.

The dispensing room, in which the prescription work is done, was planned by the architect as a model drug room with eight dispensing departments. Each of these is fitted with all of the equipment necessary for prescription work.

The senior pharmacy class, which averages from 25 to 35 students, is divided into 4 sections, and each section works 8 weeks in this department. The Professor of Pharmacy, the Associate Professor of Pharmacy and an assistant give their closest supervision to every detail in connection with this work. Every prescription that comes from the medical clinic is a bona fide one and in a clinic of such proportions they cover a wide range. Every step in the work, reading, compounding, quantities, labeling, wrapping and returning to patient is checked by one or more of the instructors in charge. Each student knows when he begins work in this department that if any one of the instructors is not thoroughly satisfied with the quality of work he puts out, such a student will not even be considered for graduation. The Associate Professor of Pharmacy who has charge of the didactic course which consists of 48 hours of class work, in the Art of Compounding (Scoville's text), and in Incompatibilities in Prescriptions (Ruddiman's text), has ample opportunity to connect the didactic and the practical in this department and he does this with most excellent results. The student has access during this work to all the reference books which may throw light upon what he is doing and is encouraged to use these references freely.

It is hardly necessary to state that each student keeps an individual prescription file, and that work in this department must be done with all the neatness of which the individual is capable.

We believe that the methods outlined above are enabling the School of Pharmacy of the Medical College of Virginia to send out graduates who are thoroughly trained in both the principles and practice of prescription work. We have planned the course at considerable cost, and with a degree of care that its importance seems to merit. Each year shows us some detail which may be improved. The plan is not yet perfect, but we are hoping to develop it to a point where little is to be desired to make it a model. If our fellow teachers can make suggestions that will make it more efficient, we will be deeply grateful.

(Signed) WORTLEY F. RUDD, *Dean.*

The College of Pharmacy of the University of Minnesota is in charge of the drug rooms of the University Medical School Out-Patient Department and of the University Hospital so far as the dispensing of prescriptions is concerned. We consider ourselves very fortunate indeed in having secured about twenty years ago the opportunity for practical dispensing experience for our seniors. Through the efforts of this college quite a number of years ago the matter of formulating prescriptions instead of designating proprietaries was taken up with the physicians of the University Hospital and of the dispensary staff. I claimed that our students had a right to compound prescriptions rather than merely to take something off a shelf. Instruction has now been given for many years in the Medical School in pharmaco-dynamics and this instruction has been related to prescription writing and as a result the clinicians and the advanced medical students including the interns are writing as a rule a fairly large percentage of well-formulated prescriptions the dispensing of which affords most valuable experience to our seniors. The total number of physicians' prescriptions dispensed largely by the seniors under strict supervision and instruction of competent instructors and assistants reached a total of 24,879 during the year ending June 30, 1921. The number of prescriptions dispensed annually has been for a number of years now in excess of 20,000. This prescription practice supplements and corresponds with the didactic and laboratory work in the regular college course in dispensing and incompatibilities here in our own building. This course occupies six hours weekly for the entire senior year. The drug rooms of the dispensary are located in another building.

As stated above our dispensing work runs through the year and includes therapeutic, pharmaceutical and chemical incompatibilities as well as the critical study of the prescription and practical work in dispensing a wide range of prescriptions taken from actual medical practice. This work is done in our senior year. The total credit for this work is 18 (with us a credit is one hour of lecture or recitation or two hours of laboratory work per week per quarter). The students entering upon this work have had two solid years of preparation. They have finished all of their general analytical and pharmaceutical inorganic and organic chemistry, materia medica, pharmacognosy, pharmacopoeial testing, operative pharmacy, pharmacy, etc. The work in dispensing is done concurrently with pharmacopoeial assay, bacteriology, food and drug analysis, physiology, mineralogy and crystallography. I tell you this because we are at variance with those who feel that the actual work of dispensing be taught advantageously in earlier periods of the course.

The work in dispensing is conducted by Full-Professor G. Bachman, assisted by Instructors Turner, Chittick, Bruce and Vogel. The dispensing laboratory in the Pharmacy building is very completely equipped and is not used for any other purpose. Here typical prescriptions of a wide range taken from active prescription files and from textbooks and laboratory manuals, are studied theoretically and dispensed practically. Students receive class and personal instruction and drill. Concurrently with this work the class in dispensing does the major part of the actual dispensing in the University Free Dispensary. The administration of this dispens-

ary and of the drug room in the University Hospital is dual, the College of Pharmacy carrying the work of supervision relating to the dispensing of prescriptions. The person in charge is designated University Hospital Pharmacist. The salary is paid jointly by the Medical School and the College of Pharmacy and his nomination is made jointly by the two schools. The hospital pharmacist must be of the rank of instructor or of a higher rank and in his capacity as instructor he is a member of the Pharmacy faculty and responsible to the Dean of Pharmacy in all work in which the College of Pharmacy has supervision. This position has always been filled by a graduate of the College of Pharmacy. (Recently Dr. Oscar Blosmo, who had occupied the position for many years, resigned to practice medicine. He was superseded by a young woman graduate, Miss Hallie Bruce, who is assisted in the dispensary instruction to our students by another woman graduate, Miss Vivian Vogel.) Professor Bachman has charge over these but because of the very complete organization which we have developed, very little of his time needs to be given to the dispensary oversight. Occasionally I give personal attention to the work there.

For the purpose of this dispensary practice work the senior class is divided into eight or more sections in order to keep the number in each section as small as possible for the purpose of the maximum personal instruction. The dispensary is open afternoons and one section is in attendance every afternoon from 1:00 until about 4:30 or 5:00. The section at work in the dispensary is absent from whatever other laboratory work occurs that afternoon in the Pharmacy building. The section is not excused from this other work but has to make it up. All laboratories are open Saturday mornings for make-up work.

The dispensary prescription work is not done entirely by the students because there are times of rush in which the instructors must also dispense but their primary work is to instruct the students and supervise their work. Great care is exercised in checking work, materials, weights and measures. We have no record of any errors made in the dispensing of about a quarter million prescriptions. The fact should be emphasized that most of the prescriptions filled are formulated ones, written by medical students in their last year, interns and by the physicians and surgeons in charge of the various clinics. The prescriptions written by the advanced medical students are supervised by the heads of the respective clinics. The College of Pharmacy has been able to do constructive work along these lines because through its influence, which began years ago, proprietaries are rarely prescribed. The hand-me-downs that one finds in some dispensaries are entirely absent.

The total number of prescriptions dispensed largely by the senior pharmacy class under the supervision and instruction of Instructors Blosmo and Bruce during the year 1920–21, is exhibited by the following table by months:

July 1920	1922	January 1921	2187
August	2078	February	2182
September	2086	March	2286
October	2014	April	1921
November	1884	May	1888
December	2226	June	2205
		TOTAL	24879

This prescription practice supplements and corresponds with the didactic and laboratory work in the regular college course in dispensing and incompatibilities.

The indications so far are that the number of prescriptions during the current year will exceed the total of last year.

In this connection it may be interesting to know that the greater bulk of the preparations dispensed in the Free Dispensary are made by the advanced students in the College of Pharmacy, of course under the strictest supervision. Students

in pharmacy therefore have the dual experience of making all of the preparations of the U. S. P. and the N. F. which are dispensed in the Free Dispensary. The College of Pharmacy is reimbursed for the cost of materials.

The equipment of the Dispensary of the College of Pharmacy is very excellent. All apparatus is of the highest quality including the balances and weights.

This college, I understand, is unique because of the fact that it renders considerable service to many of the university divisions and to many persons and agencies outside of the college and the university. Our service here at the university reaches the University Hospital, Free Dispensary, Health Service, Dental College, all of the Departments of the Medical School requiring medicines and preparations of various kinds (especially pharmacology, physiology, pathology, etc.), vterinary Department, Athletic Association, Department of Psychology, University Storehouse, etc.

(Signed) FREDERICK J. WULLING, *Dean*.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter. To maintain its activity and representation each branch should see that at least three of its meetings during the year are reported in the JOURNAL.

CHICAGO.

The 122nd meeting of the Chicago Branch of the American Pharmaceutical Association was held at the Hotel LaSalle Friday evening, December 16, with President C. M. Snow in the chair.

Preceding the meeting a host of friends of Dr. and Mrs. Henry Kraemer, guests of honor, gathered for dinner.

Dr. Kraemer addressed the meeting on

PHARMACY—ITS PROBLEMS AND THEIR SOLUTION.

His talk was illustrated with lantern slides and he presented, in a most interesting way, a number of newer propositions that are up in pharmacy and in medicine. A few of the most interesting points he presented are as follows:

TOOTH CLEANSING AND POLISHING.

Illustrations of Dr. Bunting's tooth brushing machine and the effects of 10,000 double strokes of the brush on human teeth—equivalent to ten strokes a day for a period of three years, and of the sets of teeth that had been so brushed with various tooth preparations. The erosion effected by diluted vinegar amounted to one one-thousandth of an inch in depth. Pastes containing grit resulted not only in erosion but in a smeary appearance. Pastes and powders containing coarse grits not only cut deep grooves but left a dull appearance, fine grits giving the enamel a high polish and white appearance. Jungman's Tooth Powder gave practically no wear of the enamel, but it gives a high polish, due to the tin oxide. The formulas for the two best tooth powders known are as follows:

Blair's Formula.

Strontium oxide	20
Calcium carbonate	76
Soap	3
Catechu	1
Flavor	

Dissolve the soap in about 4 parts of water and mix intimately with about 25 parts of precipitated chalk, and dry at moderate heat. Dissolve the catechu in 5 parts of alcohol and intimately mix with 25 parts of precipitated chalk; mix equal parts of oil of wintergreen and oil of sassafras with the remaining 25 parts of precipitated chalk, using about 6 drops of the mixed oils for each 100 Gm. of the powder. Mix the three portions and sift through a bolting cloth. Follow about the same pro-

cedure for preparing Jungman's Powder, except that the catechu is omitted and the oils should first be intimately mixed with the sugar.

Jungman's Formula.

Tin oxide	15
Precipitated chalk	60
Soap	4
Sugar	5

Flavor

Dr. Kraemer distributed samples of these two powders for inspection.

Regarding tooth pastes—he stated that chlorate of potash was injurious to the enamel, peroxides are simply impossible, and zinc chloride unfavorably affects the collapsible tubes.

SODIUM CHLORIDE FOR THE RELIEF OF TENSION HEADACHE.

It has been found that sodium chloride injected intravenously has a marked effect in the relief of tension headaches. Also, large quantities of sodium chloride taken orally will give relief, but it is almost impossible to retain in the stomach the quantities necessary to produce the results. Therefore, the problem arises as to the best means of bringing several 10 to 15 grain doses of sodium chloride into the intestinal tract; as much as one-half ounce is sometimes required.

VITAMINES.

Some of the latest and most interesting data on this very important subject were presented by the speaker, with many illustrations of the marked effect that individual vitamines exert in the cure of certain diseases. He stated, however, that self-medication with separate or mixed vitamines certainly was not a panacea for all the ills of mankind.

WHY SUCCESSFUL PHARMACISTS?

Using as types, a firm which has achieved marked success in the marketing of high-grade pharmaceutical specialties and a ginger ale manufacturer of national reputation, Dr. Kraemer pointed out some of the outstanding features that will bring success to pharmacists, and he showed many interesting pictures illustrating the subjects.

The extended discussion which followed was led by Professor Snow and proved very profitable.

The next meeting will be held January 6 at the Hotel LaSalle—the speaker will be Dr. A. S. Burdick on the general subject of "The Manufacture of the Newer Synthetic Chemicals."

E. N. GATHERCOAL, *Secretary.*

CINCINNATI.

J. H. Moreton told the Cincinnati Branch of the American Pharmaceutical Association at its December meeting that the time is not far distant when we will ride in rubber tired vehicles over rubber roads, wearing rubber clothing, rubber hats, rubber shoes, and rubber gloves, and retire to rest on rubber mattresses in houses with rubber floors and rubber roofs. In fact, all these things are now in use, for there are stretches of rubber roads which have been in constant use for twenty years.

He gave an interesting sketch of the early history of rubber from the first reference made to it by Christopher Columbus in his report of the discovery of America, the studies made in 1761 at the behest of the Paris Academy of the inventions of rubberized clothing by Mackintosh, etc., culminating in the discovery of the process of vulcanizing rubber by Charles Goodyear, the American inventor who, accidentally dropping a lump of rubber mixed with sulphur on a hot stove, found that before he was able to get the rubber off the stove the heat had changed its physical properties, making what we now know as ordinary rubber. The name "rubber" was given to the product by Joseph Priestley, the distinguished chemist, whose discovery of the property which it possesses of erasing marks on paper antedated the discovery of Goodyear.

The rubber plantations in the British East Indies have all grown out of the work of Wickhua, who in 1876 visited the rubber forest of the Upper Amazon and brought back to England 150,000 seed of the rubber trees. These were planted in Kew gardens and the young trees grown from them shipped to Ceylon and India, where the outside world knew nothing of their existence until they came into bearing. Now the English colonists have two million acres of rubber plantations which are being added to constantly and without which the rubber industry would be paralyzed, for these plantations provide 76 percent of the crude rubber supplies of the world.

Akron, Ohio, is the center of the rubber industry, consuming more than a fourth of the total crude gum of the world, while the United States consumes three-fourths. The plant of one firm, the B. F. Goodrich Company, with which Mr. Moreton is associated, represents the investment of 157 million dollars and gives employment to nearly 30,000 operatives.

Rubber sundries, said Mr. Moreton, offer the best field for the development of merchan-

dising in the retail drug business, for the better qualities of rubber goods afford a long profit and their sale can be very much extended by the exercise of salesmanship on the part of the clerks. For instance, a recent survey shows that only one family in ten in the United States has a rubber bottle. Good salesmanship on the part of the clerk would sell a rubber bottle to each of the other 9 families, and since the sale of each bottle means a profit of approximately one dollar to the druggist this would mean an additional profit for the drug trade of $18,000,000!

Mr. Moreton received a rising vote of thanks from the Branch members for this exceedingly interesting and informative lecture.—*Reported by C. A. Mayo.*

NEW YORK.

The December 1921 meeting of the New York Local Branch of the American Pharmaceutical Association was called to order in the Lecture Hall of the New York College of Pharmacy Building on Monday, December 14, 1921, at 8:15 P.M. with President Anderson in the chair.

Over one hundred members and friends were present, among them in addition to the speaker of the evening, Dr. Downing, there were also present Messrs. Hilton, LaWall, Koch, Gregory, and many other prominent visitors.

Dr. Anderson extended the privilege of the floor to all present who were not members of the Branch. The reading of the minutes of the preceding meeting was dispensed with.

Treasurer's Report.—The Treasurer's report was received and ordered filed.

Membership Committee.—The following applications were received for membership in the Parent Organization.

Dorothy Parisi, 903 East 35th St., Brooklyn, N. Y.; Sidney Fox, 686 Westchester Ave., New York, N. Y.; John F. Klipp, 109 Franklin St., Garden City, N. Y.; John Woell, 312 Front St., Hempstead, L. I., N. Y.; Carl A. H. Kloving, Main & Second Sts., Mineola, N. Y.; Harvey Weinschenk, Main St., Babylon, N. Y.; Edward P. Manville, Cor. Main & Saunders St., Whitehall, N. Y.; Harry Sterling, 199 Merrick Road, Rockville Centre, N. Y.; Israel Kaess, 2312 7th Ave., New York, N. Y.

Fraternal Relations.—Henry B. Smith reported progress.

Education & Legislation.—C. L. Eddy presented a report which was ordered filed.

Member of the Council.—Dr. Hostmann brought in a most complete report of the activities of the Council. He asked for instructions regarding the date of the next annual meeting.

Communications.—A letter from Dean Theodore J. Bradley of Boston was read in which he expressed his regrets that he could not be present at our meeting.

New Business.—President Anderson appointed as a nominating committee to report at our next meeting, Messrs Lehman, Mayer and Lascoff.

Scientific Section.—Chairman of the Committee on the Progress of Pharmacy, Dr. Diekman, reported that while he had prepared a report he would not present it at this time because of the special program.

Dr. Augustus S. Downing, Assistant Commissioner of the University of the State of New York, was introduced by President Anderson and delivered an address on "Educational Requirements in Pharmacy." This was then discussed by Messrs. Koch, Arny, LaWall, Gregory, Diekman, Kopald, Diner, Glover, Hilton and others.

After the discussion Dr. Downing answered various points brought up.

A rising vote of thanks was extended to Dr. Downing and the visitors. On account of the lateness of the hour it was decided to postpone the discussion of the date for the annual convention until the January meeting of the Branch.

HUGO H. SCHAEFER, *Secretary.*

PHILADELPHIA.

The November meeting of the branch, which was held at the Philadelphia College of Pharmacy and Science, on November 8, was well attended.

Dr. Horatio C. Wood, Jr., delivered an address on "Colleges of Pharmacy as Pre-Medical Schools." As physician and also a faculty member of both a medical and a pharmacy school, he had an insight into the advantages offered by a pharmacy course to prospective medical students. His paper was well received and discussed fully by many of the members.*

W. S. Carman, Internal Revenue Inspector, spoke of experiences in searching out violators of the prohibition laws and exhibited a large number of forged signatures to prescriptions

* See JOURNAL A. PH. A., November 1921, p. 826.

for liquors. He explained some of the regulations applying to the purchase, sale and dispensing of alcoholic preparations.

At the next meeting, December 10th, Dr. C. H. LaWall will tell the pharmacist what he should know about food and drug laws.

DECEMBER MEETING.

The December meeting of the Philadelphia Branch of the American Pharmaceutical Association was held in the Philadelphia College of Pharmacy and Science Building, Tuesday evening, December 13th. After transacting the usual routine business President J. W. England introduced the speaker of the evening, Dr. Charles H. LaWall, who spoke on "the Federal and State Food and Drug Laws, and Their Application to the Pharmacist." He discussed the general laws of the Federal Government which did not specify any particular adulterations as being unlawful, and pointed out the difficulty in enforcing such laws, as compared with the ease of enforcement of state laws wherein specific mention is made of substances which are considered adulterants.

Referring to those laws which affect the pharmacist directly, particularly in the State of Pennsylvania, he mentioned the following acts and products which are affected: Milk and Cream Act; Ice Cream Act; Fresh Egg Act; New Alcoholic Drinks Act, which includes all soda water, orange-ade, grape juice and other similar beverages, and the General Food Act which embraces flavoring extracts, confectionery and cake.

In speaking of the drug laws he stressed the fact that many pharmacists buy preparations which bear U. S. P. or N. F. names but are made according to modified formulas. These preparations are afterward sold as full-strength products and, consequently, the pharmacist may find himself in trouble. Sales of Elixirs of Iron, Quinine and Strychnine are the most frequent sources of trouble.

Dr. LaWall's talk was interesting and informative; he drew upon his own experiences in a work that has engaged him for many years and during which time he has analyzed a very large number of foods and drugs.

At the January meeting of the Branch on January 10th the Alchemists will again hold sway with their Black Art.

Jos. W. E. HARRISSON, *Secretary.*

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 4.

(Abstract.)

WASHINGTON, D. C., November 18, 1921.

16. *Completed list of nominees for membership on committees reported by Committee on Nominations*—Adopted, and No. 897, Robert R. Gerstner is elected member of the committee on Unofficial Formulas, in place of R. W. Terry who asked to be relieved.

17. *House of Delegates recommends change in make-up of Program Committee (see items 5 and 11).* Under date of November 5, 1921, Prof. Hostmann writes as follows:

"I very much regret that I neglected to present the recommendation concerning the change in personnel of the Committee on Program to the last general session. In the final rush it slipped my memory. If it had been presented at that time the objections now offered could have been discussed by the members as well as by the mover thereof, Prof. Beal."

18. *Request that the Association underwrite to the extent of $300 the expense of printing the "Official Catalogue of Standardized Plant Names" compiled by the American Joint Committee on Horticultural Nomenclature (see items 6 and 12).* In view of opinions expressed by those who have discussed this subject, it is moved by President Hilton, seconded by DuMez, that this request be *not* granted. A vote is now called for.

19. *Selection of date of next annual meeting under discussion.*

20. *Request for the appropriation of $500 for the House of Delegates for postage, printing and clerical services (see items 7 and 13), granted.*

21. *Applicants Nos. 27 to 37 elected to active membership.*

22. *Treasurer's Bond.* It is moved by H. M. Whelpley and seconded by W. B. Day, that a bond of $15,000.00 with the bonding company now bonding Treasurer H. M. Whelpley be placed on Treasurer-elect E. F. Kelly, the same to date from January 1, 1922, it being understood that the bond, covering Treasurer H. M. Whelpley, be continued in force until the actual transfer of the office of treasurer from St. Louis to Baltimore has been completed.

The Association has authorized this transfer to be made January 1, 1922. It, however,

will require some time to have the accounts for 1921 audited and the actual transfer completed.

23. *Election of active members:*

No. 37, John Alfred Rott, White Rock, S. Dak.; No. 38, Morris Milton Siller, 1265 State St., Bridgeport, Conn.; No. 39, Alexander Pearlstone, 831 Chambers St., St. Louis, Mo.; No. 40, Joseph Bell Burt, College of Pharmacy, University of Nebraska, Lincoln, Neb.; No. 41, John J. Mullowney, Meharry Med. College, Nashville, Tenn.; No. 42, Engelbert A. Engebretson, Clear Lake, S. Dak.; No. 43, Mrs. P. A. Mossmyer, 2511 Highland Ave., Cincinnati, Ohio; No. 44, Carl Winter, 300 Electric Bldg., Prospect Ave., Cleveland, Ohio; No. 45, Andrew E. Guskea, 218 W. 6th St., East Liverpool, Ohio; No. 46, Howard A. Dinstel, 32 Main Ave., Kingston, Pa.; No. 47, Carl W. Gruver, 47 Shafer Ave., Phillipsburg, N. J.; No. 48, Arthur C. Sorel, 61 Clayton Street, Springfield, Mass.; No. 49, Harvey Van Rensselaer Crowell, 93 Binney St., Boston, Mass.; No. 50, Ronald William MacCorkell, 675 59th St., Oakland, Calif.; No. 51, Esten P. Stout, College of Pharmacy, Detroit Inst. Tech., Detroit, Mich.; No. 52, Talmage Turner Ray, 1328 20th Ave., Altoona, Penn.; No. 53, R. Scott, c/o Northern Drug Co., Duluth, Minn.; No. 54, Ellis Lawrence Spurgeon, U. S. Public Health Service Marine Hospital, San Francisco, Calif.; No. 55, Neville Campbell Clarke, National Soldiers' Home, Sawtelle, Calif.; No. 56, Jos. G. Goldenberg, 715 Green St., Philadelphia, Pa.; No. 57, Edward K. Field, 2541 Field Ave., Detroit, Mich.

A. G. DuMez, *Secretary.*

A. PH. A. COUNCIL LETTER NO. 5.

(Abstract.)

WASHINGTON, D. C., December 6, 1921.

24. *House of Delegates recommends change in make-up of Program Committee (see items 5, 11 and 17).* Prof. Beal moves:

"In order to meet the situation aroused by the point of order, that the constitution of the Committee on Program cannot be altered without amendment of the By-Laws, I offer the following motion:

"That the Committee on Program be instructed to confer with the Chairman and Secretary of the House of Delegates when they come to the planning of the program of the next annual convention of the Association."

25. *Request that the Association underwrite to the extent of $300 the expense of printing the "Official Catalogue of Standardized Plant Names" compiled by the American Joint Committee on Horticultural Nomenclature (see items 6, 12 and 18)*—Motion No. 18, carried and request not granted.

26. *Selection of date of next annual meeting (See item No. 19) under discussion.*

27. *Treasurer's Bond (see item 22).* Motion No. 22, a motion to the effect that a bond of $15,000 with the bonding company now bonding Treasurer Whelpley be placed on Treasurer-elect E. F. Kelly beginning January 1, 1922, has received a majority of affirmative votes.

28. *Request that a committee be selected to investigate the advisability of moving the Journal Headquarters to Washington, D. C.* Under date of November 18, 1921, Prof. Rudd makes the following motion:

"Moved, that a committee of three, consisting of President S. L. Hilton, Dr. A. G. DuMez and a third member of the Council to be selected by these two, be appointed for the purpose of investigating the whole question of moving headquarters of the Journal to Washington City."

"Moved further, that this committee make a report to the Council not later than February 1st."

29. *Applicants Nos. 37 to 57 elected to active membership.*

30. *Election of active members.*

No. 55, Neville Campbell Clarke, National Soldiers' Home, Sawtelle, Cal.; No. 56, Jos. G. Goldenberg, 715 Green St., Philadelphia, Pa.; No. 57, Edward K. Field, 2541 Field Ave., Detroit, Mich.; No. 58, Everett W. Kratz, 1632 Merrick Ave., Detroit, Mich.; No. 59, Ralph William Clark, 2105 Keyes Ave., Madison, Wis.; No. 60, Sister Mary Tryphonia, St. Joseph's Hospital, Providence, R. I.; No. 61, Ray E. Spokes, 203 Erskine St., Detroit, Mich.; No. 62, Bernard A. Bialk, 847 Collingwood Ave., Detroit, Mich.; No. 63, Gerald M. Prhybylski, 5354 Chene St., Detroit, Mich.; No. 64, Dwight D. Moore, 121 So. Center St., Bloomington, Ill.; No. 65, R. R. Barnes, 412 East Main Street, Bushnell, Ill.; No. 66, Robt. C. Thayer, 1522 Bryn Mawr Ave., Chicago, Ill.; No. 67, Richard I. Grantham, 307 West Pratt St., Baltimore, Md.; No. 68, Herman F. Wertzler, 116 Canal St., Lemont, Ill.; No. 69, Joseph Wolfson, 835 Columbus Ave., New York, N. Y.; No. 70, Ernest Molwitz, 2709 8th

Ave., New York, N. Y.; No. 71, Samuel A. Goldstein, 200 Audubon Ave., New York, N. Y.; No. 72, Harry Glick, Central Valley, New York; No. 73, Ephraim Freidman, 172 St. John's Place, Brooklyn, N. Y.; No. 74, Louis B. Decker, 373 Main St., Catskill, N. Y.; No. 75, Bernhard H. Berning, 180 Main St., Port Washington, N. Y.; No. 76, Joseph L. Weil, 235 Greenwich St., New York, N. Y.; No. 77, John Joseph Backes, 3 Bloomingdale Ave., Saranac Lake, N. Y.; No. 78, Ernest Gottfried Kuenzi, Room 355, Chemistry Bldg., University of Wisconsin, Madison, Wis.; No. 79, Christo Mouradoglou, Port Tewfik Pharmacy, Woolf & Co., Port Tewfik, Egypt; No. 80, Alfred W. Gilbert, 527 Grand St., New York, N. Y.

A. G. DuMez, *Secretary.*

A. PH. A. COUNCIL LETTER NO. 6.
(Abstract.)

WASHINGTON, D. C., December 20, 1921.

31. *House of Delegates recommends change in make-up of Program Committee (see Items 5, 11, 17 and 24).* Under date of December 8, 1921, Mr. Beringer comments on Dr. Beal's motion as follows:

"The suggestion made by Dr. Beal as per your favor of December 6th merits comment and consideration. I do not understand why the program should be referred to the House of Delegates any more than to any of the committees or sections of the Association.

"It would appear to me that we should carefully deliberate over the possible changes that may be effected in the A. Ph. A. by some of the proposed changes."

32. *Selection of date of next annual meeting (see Items 19 and 26).* The following are abstracts of comments:

H. M. Whelpley: "Either the week of August 7 or August 14 is better than either an earlier or a later date in August."

Frederick J. Wulling: "Opposed to summer meetings."

D. F. Jones: "The week of August 7 would be good. The first week of any month is inconvenient and any date during the school year."

Clyde M. Snow: "The particular date of the meeting has no influence on the attendance, all talk to the contrary notwithstanding."

R. A. Lyman: "Date should be placed toward the beginning or the end of the vacation period."

The following is offered as a substitute motion for that made by Prof. Rudd (Item 26, Letter No. 5).

"Moved by Hopp and seconded by Spease that the 1922 meeting of the A. Ph. A. be held at the Statler Hotel in Cleveland, Ohio, during the week of August 14th to 19th inclusive. The Weather Bureau has promised beautiful weather and the records here show that the average temperature is never very high at this time of the year and that the nights are always cool. This will leave, for any who wish to stop at a lake resort during the next week, an opportunity to do so. This will further have the meeting over in such time that everybody can be at home before the public schools and colleges open."

In forwarding this motion Local Secretary Spease writes as follows:

"We have decided upon the Statler Hotel in Cleveland for the meeting of next summer. The date we have decided upon is that of the week of August fourteenth to nineteenth, inclusive, the fourteenth being Monday. I have received one or two communications from people who wanted the meeting later, but upon our investigation here we believe the earlier date will be better. We have interviewed the Weather Bureau and have taken everything of that nature into consideration."

33. *Request that a committee be selected to investigate the advisability of moving the Journal Headquarters to Washington, D. C. (see Item 28).* Chairman LaWall has ruled as follows on Prof. Rudd's motion:

"First, the subject of a permanent home is now being made the objective point of a special committee of the Association, which has already been appointed and of which Dr. Beal is chairman.

"Second, the Executive Committee is already charged with the responsibility of suggesting a plan for reorganization of the Association, and the subject of moving the headquarters of the Journal is part of the plan.

"The appointment of a third committee having to do with one of the phases of the same comprehensive plan would serve no good purpose at this time."

34. *Proposed budget of appropriations for 1922.* The following proposed budget of appropriations for 1922 has been submitted by Chairman Koch of the Finance Committee:

PROPOSED BUDGET OF APPROPRIATIONS FOR 1922.

Appropriations for General Expenses.				
No. 1	Salaries		$ 6,400.	
No. 2	Printing, Postage and Stationery		1,000.	
No. 3	Clerical Expenses Secretary's Office		416.	
No. 4	Miscellaneous Expenses		200.	
No. 5	Stenographers		350.	
No. 6	Traveling Expenses		500.	
No. 7	Committee on Membership		500.	
No. 8	Committee on Unofficial Standards		100.	
No. 9	Year Book		5,000.	
No. 10	Premium on Treasurer's Bond		62.50	
No. 11	Auditing Treasurer's Books		80.	
No. 12	National Drug Trade Conference		200.	
No. 13	Section on Scientific Papers		25.	
No. 14	Section on Education and Legislation		25.	
No. 15	Section on Commercial Interests		25.	
No. 16	Section on Practical Pharmacy and Dispensing		25.	
No. 17	Section on Historical Pharmacy		25.	
No. 18	Women's Section		50.	
No. 19	National Syllabus Committee		25.	
No. 20	Committee on Recipe Book		50.	
No. 21	Committee on Local Branches		25.	
No. 22	Drug Trade Board of Public Information		250.	
No. 23	War Veterans' Section		50.	
No. 24	House of Delegates		500.	
			$15,883.50	$15,883.50
Appropriations for Open Accounts				
No. 25	Journal		$11,000.	
	(*a*) Publication	9,500.		
	(*b*) Clerical Expenses	1,000.		
	(*c*) Postage and Stationery	300.		
	(*d*) Freight, Drayage, Miscellaneous	200.		
No. 26	National Formulary		1,000.	
No. 27	Badges and Bars		50.	
No. 28	Certificates		50.	
			$12,100.	12,100.00
				$27,983.50

35. *Applicants Nos. 58 to 80 elected to active membership.*

36. *Election of active members.*

No. 81, Harry A. Lewit, 54 Magnolia St., Newark, N. J.; No. 82, Charles Wesley Petranek, 69 Grace St., Park Ridge, Ill.; No. 83, Harvey E. Wilson, 342 E. 71st Street, Chicago, Ill.; No. 84, Christian Koerner, 2702 North Ave., Milwaukee, Wis.; No. 85, Donald A. Shannon, 700 N. Fulton Ave., Baltimore, Md.; No. 86, Paul Unger, 3601 W. 12th St., Chicago, Ill.; No. 87, George L. Baldauf, 3426 North Ave., Milwaukee, Wis.; No. 88, Leonard Brechwoldt, 23 N. Wabash Ave., Chicago, Ill.; No. 89, John D. Skowron, 1659 Cortland St., Chicago, Ill.; No. 90, Vincent Michael Zahajkiewicz, 2026 Webster Ave., Chicago, Ill.; No. 91, George Harrison Pleasant, 3558 S. State St., Chicago, Ill.; No. 92, Harry Louis Reynolds, 4th & Quincy Sts., Hinsdale, Ill.; No. 93, Max Bartel, 1160 27th St., Milwaukee, Wis.; No. 94, Emil T. Lobedan, 736 7th St., Milwaukee, Wis.; No. 95, Fred Lewis Zindler, 3119 Jefferson East, Detroit, Mich.; No. 96, Herman Philip Smith, 222 N. Leamington Ave., Chicago, Ill.; No. 97, Arthur B. Thomas, 701 So. Wood Street, Chicago, Ill.; No. 98, Joseph Downey Dougherty, 1020 Chestnut St., Ottawa, Ill.; No. 99, Henry Edmund Kunka, 3146 So. Morgan St., Chicago, Ill.

A. G. DUMEZ, *Secretary.*

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Conducted by H. V. Arny, Reporter on the Progress of Pharmacy, Chairman of the Committee on Research.

On these pages, each month, will be found a list of articles on pharmaceutical research that appear in the pharmaceutical and other scientific journals of the world. Whenever possible, the list appearing a certain month will record articles appearing in American journals of the preceding month and articles appearing in foreign journals will be recorded as quickly as possible after the journals reach the Reporter.

All articles appearing in these lists will be presented in abstract form in the bound volumes of the YEAR BOOK which will be issued as soon after the end of the year represented as editing and printing conditions permit. Those desiring abstracts immediately can obtain same for a fee of one dollar each by communicating with H. V. Arny, 115 West 68th St., New York, and arrangements can also be made for securing photographic reproductions of entire articles at moderate prices when such are desired.

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COMMITTEE REPORTS

REPORT ON THE STATUS OF PHARMACISTS IN THE ARMY AND NAVY.

There is not likely to be an opportunity for new legislation in the interest of naval pharmacists during the present session of Congress. The present demand for a reduction in cost on naval administration has given no promise of success to any bill which would promise an increase in naval expense.

I have conferred with the Surgeon-General of the Navy and with others in the Bureau of Medicine and Surgery, and have also talked over the situation with Dr. Braisted, former Surgeon-General, and while they have all agreed that additional legislation is necessary, and Surgeon-General Stitt has personally placed a bill before the Secretary of the Navy, Mr. Denby, with favorable recommendation, there has been no further action taken.

In the Army some progress has been made toward the organization of the pharmaceutical division of the Medical Service Corps. There have been a few commissions granted to men who had previous service in the Sanitary Corps, and it is expected that orders will soon be received to issue commissions in the Reserve Corps to pharmacists who are properly qualified. The reduction in the size of the Army by recent Congressional action has proportionately decreased the number of commissions available but it is a gratifying fact to know that as the situation in both the Army and Navy now stands, should there be any need for a large Army or Navy, pharmacists will immediately be in line for commissions, and the basic organization is well worked out.

That which pharmacy must recognize is the fact that only those who are well trained professionally and who have those other qualifications which are essential for success as an officer, will be eligible for commissions. Pharmacy is endeavoring to prove its value to the military establishment, and wherever an opportunity is given there should be a maximum of creditable service, if we look forward to the proper development of professional pharmacy in the Army and Navy.

Copies of letters from Admiral Stitt and General Ireland are attached.

WAR DEPARTMENT
OFFICE OF THE SURGEON GENERAL
WASHINGTON

August 4, 1921.

Dr. E. Fullerton Cook,
636 South Franklin Square,
Philadelphia, Pa.

Dear Dr. Cook:

I have before me your letter of August 2, 1921, in which you request that I outline to you for presentation to the American Pharmaceutical Association during the New Orleans meeting, the status of pharmacy in the army.

There are now on active duty fifteen commissioned officers in the Medical Department who are pharmacists. These men are commissioned in the Medical Administrative Corps, distributed through the grades of captain and first and second lieutenant. They

were commissioned under the Act recently reorganizing the army, from among those non-commissioned officers of the Medical Department whose long service and efficient performance of duty particularly during the World War entitled them to this promotion.

Many of these officers hold degrees in pharmacy and all of them are registered and in every way qualified pharmacists. At the present time because of our shortage of administrative officers, the majority of them are not operating as pharmacists during the major portion of their time but are almost entirely employed upon administrative work in connection with our Medical Department installations within the regular establishment.

The Medical Administrative Corps is the commissioned branch of the Medical Department which is open to enlisted men who possess the requisite preliminary education and who acquire the ability which would qualify them to take examinations for commission. The path to a commission is through the specialist ratings and non-commissioned officer grades and successful aspirants are commissioned as second lieutenants.

At the present time because of the reduction in the strength of the army there are no vacancies in the Medical Administrative Corps which as a matter of fact is overfilled and for some time to come it will be necessary to absorb a certain number of files before there is an opening. It has been my hope to reserve fourteen vacancies in the Medical Administrative Corps to be filled ultimately by successful candidates for commission from among enlisted men who were trained and graduate pharmacists. The wording of the law is such that initial vacancies were required to be filled from soldiers with former service such as our non-commissioned officers, but subsequent vacancies under more favorable circumstances than exist at the present would have been open to the young pharmacists which I had hoped to see recruited into the enlisted strength of the Medical Department. Unhappily as I have just pointed out there are no such vacancies at present although there is still a pressing need for more pharmacists in our hospitals. The void is being filled by training suitable soldiers under the supervision of those qualified pharmacists now in the service.

There are now in the Medical Administrative Officers Reserve Corps thirty-seven pharmacists. These are individuals who have returned to civil life and have accepted reserve commissions which were tendered them by reason of their former service during war in the Sanitary Corps. They are distributed—nine in the grade of captain and fourteen in each of the grades of first and second lieutenant. At the present time no more commissions can be granted pharmacists in civil life until the War Department issues its regulation covering the officers reserve corps. These regulations, however, are expected at any time and under them it will be possible for the War Department to commission a greater number of civilian graduates of pharmacy. It is my plan at present to adopt the suggestion put forth by you and your confréres relative to the commissions being issued to the graduates of all recognized schools of pharmacy throughout the country upon the basis of the recommendations of the deans thereof eventually up to about 3 percent of the graduates of the school. The execution of this plan will give the army a splendid reserve of commissioned pharmacists which will be called to the colors in the event of a major emergency.

I should be very much pleased if you would extend to the Association at their annual meeting, the best wishes of the Medical Department of the Army. I regret very much that we were unable to be represented at that meeting by one of our officers, but unfortunately there is no authority in law for this and I had no option in the matter.

I remain,

Sincerely yours,
(Signed) M. W. IRELAND,
Surgeon General, U. S. Army.

Washington, D. C., August 11, 1921.

My dear Dr. Cook:

Many thanks for your kind letter of the 2nd instant and your interest in the Navy. I have thought and worked over the position of the present pharmacists who hold commissions as Lieutenants a great deal, particularly with a view to restricting their duties as Lieutenants in the Medical Corps to those which they are fitted to discharge properly.

The law as it stands would of necessity commission them Passed Assistant Surgeons or Assistant Surgeons. It further specifies that each candidate must be qualified, but as you know these officers cannot perform the duty of medical officers unless there be specific limitation of these duties.

My effort to obtain a limitation of duty either by legislation or administratively has been unsuccessful because of the fact that the effect would be widespread, as there is no means of prescribing such a limitation in applying it solely to pharmacists—unless by law. Personally, I am convinced that it is impossible of enactment because its discussion at once developed issues involving the service at large. These issues are entirely without my purview, and as they assume larger proportions than bear upon the pharmacists, I must of necessity accept the judgment of the Department.

Very sincerely yours,
(Signed) E. R. Stitt,
Surgeon General, U. S. Navy.

Dr. E. F. Cook,
636 South Franklin Square,
Philadelphia, Pa.

ABSTRACT OF DISCUSSION ON ADOPTION OF REPORT.*

Jacob Diner moved acceptance of the report and asked permission to present parts of the hearings on the Sterling Bill in the U. S. Senate to provide for the classification of civilian positions within the District of Columbia and in field service, etc. Dr. Diner's efforts before the Committee of Congress were directed to have "pharmacy" included among the professions named in the Bill. Reference to degrees in pharmaceutical education and curricula of pharmacy colleges, he contended, had interposed obstacles to favorable action on having "pharmacy" included among professions named in the Section of the Bill relating to "Professional and Scientific Service;" he contended for the inclusion of "pharmacy," that while some of the underlying sciences are mentioned, this was also true relative to "medicine," in naming pathology, therapeutics, surgery, etc. He directed attention to the records of the Hearings, quoting Representative London, at the conclusion of his (Dr. Diner's) testimony, "There is no doubt it (pharmacy) is one of the liberal professions."

Dr. Lyman F. Kebler stated that he had been instrumental in having someone testify before the Committee in behalf of the American Pharmaceutical Association. He contended that the Civil Service Commission insists on qualifying the man. He had discussed the provisions of this Bill last year before the Association, he was aware of its provisions, and did not think it right to leave it without some action and, therefore, his efforts to have pharmacy represented at the Hearing.

In responding Dr. Diner cited "medicine," which is specifically named among the professions in the Bill, as an example for his contention. Class C colleges would not be recognized, but "medicine" is named and "pharmacy" should be; doubtless, only qualified pharmacists would be accepted, just as only qualified physicians would be accepted; "pharmacy" should be named among the professions; in this connection the Bill deals with the profession, not with the man.

Dr. Kebler stated that the graduate requirements of pharmacists had been recognized and are recognized in Washington as coming within professional groups—that they were so recognized in the Reclassification Commission's report. He asked that something be done to fix up the matter; that it would not be done unless there is an effort on the part of those concerned to satisfactorily adjust the wording.

E. Fullerton Cook presented the following motion, which was carried:

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* The editor is not altogether satisfied with his abstract of the stenographer's report; it is responsive to a courteous note of Dr. Diner, wherein he states "that the thing itself is of importance, that personality should not enter into the discussion and should not be considered," and a letter of like tone from Dr. Kebler wherein he stated that he would probably write the matter up in more extended form as a report at some time in the future. And as the expressed wishes of the Association seem about to be accomplished, indicated by the report of December 14th, the editor has not attempted to extend the abstracts made by him of the report.

"It is moved that the Committee on Pharmacists in the Government Service be instructed to take such steps as may seem necessary to secure the inclusion of the word 'pharmacy' in the list of professions named in the Sterling Bill or in any similar bill which may be introduced in Congress.

A REPORT OF PROGRESS RE INCLUSION OF "PHARMACY" IN H. R. 8928.

December 14th, 1921.

To the Members of the A. Ph. A. Committee on the Status of Pharmacists in the Government Service.

Robert P. Fischelis
Claude C. Cannon
Lt. P. F. Dickens
Clyde L. Eddy
E. F. Cook, *Chairman.*

Gentlemen:

At the New Orleans Meeting of the A. Ph. A. this Committee was asked to take the necessary steps to secure the insertion if possible, of the term "pharmacy" in the "Professional Service" section of the Reclassification Bill "To provide for the classification of civilian positions within the District of Columbia and in the field services," the Senate Bill being known as S. 13 and the House Bill introduced by Congressman Lehlbach being known as H. R. 8928.

At the joint hearing of this bill, on June 2, 1921, Dr. Jacob Diner was invited to appear and ably presented the cause of professional pharmacy, urging its inclusion with the other professions there named.

Congressman Lehlbach stated at that time that the term "pharmacology" which there appeared was intended to cover the profession of pharmacy but Dr. Diner urged that this would not be generally understood.

The unsatisfactory character of the situation was discussed at some length in New Orleans resulting in its solution being placed in the hands of this Committee as has already been stated.

The Chairman communicated with Senator Sterling immediately upon his return from New Orleans and received a cordial letter assuring him that while hearings were closed there was yet opportunity to secure amendments and that he would gladly consider any statement submitted to him on the subject.

The Bill being called up in the House on Monday, December 12th, the Chairman called upon Senator Sterling that morning, who assured him that he had no objection to the insertion of the word "pharmacy" in the "Professional Service" class and suggested that I at once see Congressman Lehlbach and secure his approval. Upon calling on Mr. Lehlbach it was found that he yet believed that the term "pharmacology" was a preferable word to indicate the highest type of professional pharmacy and that "pharmacy" meant an inferior training and standard.

It was apparently possible to convince him that this was not the opinion held by the vast majority of pharmacists and that the term "pharmacy" was a preferable word to use in the Bill and he agreed that if the change was introduced as an amendment he would interpose no objection but would even explain the reason for the suggested change.

Congressman George P. Darrow, of Pennsylvania, thereupon agreed to introduce the amendment when that paragraph is discussed and he was supplied with the necessary data, a copy of which is attached and marked "Exhibit A."

Senator Sterling gave his approval to this entire plan and further consulted and received the approval of the technical advisor of the Committee from the Government Research Bureau, Mr. Louis Merriam.

The matter was also presented to the National Drug Trade Conference on the following day and the action approved, copies of the motion being sent to Senator Sterling, and Congressmen Darrow and Lehlbach. A copy of this motion is attached marked "Exhibit B."

The Chairman was compelled to act without an opportunity to consult the Committee and this information is sent that they may know what has been done. It is hoped that the outcome will be satisfactory and when this is known it will be communicated to the members. If the members have any suggestions it is hoped that they will write to the Chairman at once.

Very truly yours,

E. FULLERTON COOK,
Chairman.

EXHIBIT "A."

AMENDMENT.

Proposed by Mr. George P. Darrow, of Pennsylvania, to the Bill H. R. 8928—"To provide for the Classification of civilian positions within the District of Columbia and in the field services."

Viz.: On page 9, line 11, following the word "pharmacology," insert the word "pharmacy" followed by a comma.

THE REASON FOR THE AMENDMENT.

1. The technically correct, but little used and rarely understood term "pharmacology" is used in this bill to signify the professional services of pharmacy.

2. "Pharmacology" has only been used in this sense in the laws of New York State and in the National Pharmaceutical Syllabus and in both these it was introduced by an educator, not a pharmacist.

3. The American Pharmaceutical Association, the Conference of Pharmaceutical Faculties, the National Association of Retail Pharmacists, all of which are striving for the establishment of the highest professional standards, all use the term "pharmacy" to indicate this highest type of pharmaceutical service. This is also the term used in foreign countries.

4. Without this amendment, in the opinion of the majority of laymen and even physicians and pharmacists, the profession of pharmacy would be excluded from the professional class. This is not the intention of the Committee who prepared the Bill or of its Chairman.

5. The term "pharmacology," however, should also be retained as its more restrictive meaning, the study of the action of drugs, is well understood and is an important branch of medicine.

EXHIBIT "B."

(MOTION APPROVED BY THE NATIONAL DRUG TRADE CONFERENCE, DEC. 13, 1921.)

WHEREAS the Reclassification Bill, known as H. R. 8928, "To provide for the Classification of civilian positions within the District of Columbia and in the field services," uses the term "pharmacology" to indicate the profession of pharmacy in the paragraph defining Professional Service and

WHEREAS the term "pharmacology" is not generally understood or used to mean "pharmacy" either in this country or abroad and does have a specific meaning as a branch of medicine, therefore it is

Recommended by the National Drug Trade Conference in session assembled that an amendment be approved by Congress whereby the term "pharmacy" be inserted in H. R. 8928, on page 9, line 11, following the word "pharmacology."

COMMITTEE ON NATIONAL LEGISLATION.

Your committee on National Legislation herewith submits the following report. Shortly after the election of President Harding, Congress was convened in special session to consider revising the Tariff and Revenue Laws and such other legislation as may be necessary to prevent the dumping of commodities from Europe in this country, and assist in bringing about a more normal condition of affairs and, at the same time, producing the revenue necessary to conduct the affairs and meet the obligations of the government, thereby lightening the burdens of our own citizens and industries as much as possible.

The House of Representatives after many weeks of labor passed a tariff bill. As reported by the Ways and Means Committee, it contained a proviso prohibiting the importation of dyes and organic chemicals for a period of three years, also providing an ad valorem duty based on American valuation instead of a valuation at the source. Just before the passage of the bill by the House of Representatives, the proviso relating to the embargo on dyes and organic chemicals was stricken from the bill. The bill is now before the Finance Committee, U. S. Senate.

The New Volstead bill, amending the Volstead Act, has brought out no end of protests from all over the country and from all classes and industries compelled to use alcohol.

S. 1838, to amend the Patent Laws, providing compulsory working in the U. S. as recommended by the War Department within 2 years, has met with much opposition. The Senate Committee has reported the bill and recommended the passage without amendment, the Senate however has taken no action. What the Committee on Patents and Trade Marks, House of Rep-

resentatives, will do is not known at present; certainly the wishes of the American Patent Bar Association will be given due consideration at the proper time, as it has been on every occasion.

THE REVENUE LAWS.

Your Committee is of the opinion that if an active interest in National Legislation is to be taken by the American Pharmaceutical Association it will have to be by other means than what has been followed in the past. If the Association is to be active and wants results it will be necessary to secure the services of some one who is able not only to voice the sentiments and wishes of the organization but who is in constant touch with legislative matters at all times.

It seems to your Committee there is but one way, all national drug organizations should get in closer touch with each other and work for their combined interests, secure the services of a proper representative who, when occasion demands, will appear as the accredited representative of the combined drug industry of the United States.

It seems to us that this is the only method whereby the drug interests can expect fair, reasonable legislation and eliminate much of the freak and unreasonable legislation we have been burdened with for many years.

Respectfully submitted,
(Signed) S. L. HILTON, *Chairman*
A. R. L. DOHME,
JOHN C. WALLACE.

CRUDE VEGETABLE DRUGS NEED CAREFUL DRYING FOR MARKET.

Success in drying crude vegetable drugs for the market depends chiefly upon the careful control of temperature and the flow of air, says the United States Department of Agriculture in a new Farmers' Bulletin, No. 1231, Drying Crude Drugs. The application of a few fundamental principles of drying would result in making more marketable a considerable portion of the vegetable drugs that are gathered. The object of drying is to remove sufficient moisture from the product to insure good keeping qualities. It prevents molding, the action of enzymes, and chemical or other changes which are brought about by the presence of excess moisture.

Crude drugs can be dried either in the air or by the means of artificial heat. Burdock roots, for instance, are split and dried in the sun, while certain aromatic drugs, such as sage, peppermint, and wormwood, are perhaps better if dried in the shade without artificial heat. Belladonna, dandelion roots, and green leaf drugs, are among those which are dried with artificial heat.

Drying in the air varies from merely laying the materials out in the sun to shade-drying under elaborate dry-house conditions. The bulletin gives data on the amount of heat and air circulation necessary for various vegetable roots and herbs, description of two forms of artificial driers for large and small operation, hints on dry house management, and the care of crude drugs. The bulletin may be had free on application to the department.

THE BRITISH PHARMACEUTICAL SOCIETY CLAIMS PRIORITY IN THE ESTABLISHMENT OF A PHARMACEUTICAL RESEARCH LABORATORY.

The Pharmaceutical Journal and Pharmacist of October 29, 1921, comments favorably and at length on an address by Prof. Charles H. LaWall, delivered at the Centennial Celebration of the Philadelphia College of Pharmacy, closing the editorial by saying that "the principle underlying his idea of constructive public service in pharmacy and some of his suggestions for the practical application of it, are well worthy of consideration on this side of the Atlantic."

The editorial states: "To the Pharmaceutical Society of Great Britain belongs the credit and honor of having established the first chemical laboratory, and the first pharmaceutical research laboratory in this country, but for the maintenance of the latter, and the scholarships in connection with it, the Society has had to draw upon its own resources, or to depend upon private munificence. Original research, when of value to the nation, ought to receive financial assistance from the State; but if pharmacy is to be entitled to such aid it must qualify for it, as the Society has sought to do."

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: A. G. DUMEZ, *Chairman;* J. H. BEAL, IVOR GRIFFITH, R. A. LYMAN, H. B. MASON, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Collaborators: S. L. HILTON, President, A. Ph. A.; C. A. DYE, President, A. C. P. F.; L. L. WALTON, President, N. A. B. P.; E. FULLERTON COOK, Chairman, U. S. P. Revision Committee; CHARLES H. LAWALL, Chairman, Council A. Ph. A. The Chairmen of the Sections, A. Ph. A.: HEBER W. YOUNGKEN, IVOR GRIFFITH, W. H. ZIEGLER, C. W. HOLZHAUER, CURT P. WIMMER; E. F. KELLY and JEANNOT HOSTMANN of the House of Delegates; A. G. DUMEZ, Secretary of the Council, WILLIAM B. DAY, General Secretary, and H. V. ARNY, Reporter on the Progress of Pharmacy.

CHANGES IN ABBREVIATIONS AND SPELLING.

Following the U. S. Pharmacopoeia and National Formulary as guides, the abbreviation "cc" replaces "mil" for liquid metric measure and the spelling "gram" is adopted, replacing "gramme" heretofore used in the JOURNAL; the abbreviation "Gm." is continued. Uniformity in the spelling of "ampul" and plural "ampuls" is desired; this follows the "Century Dictionary."

RUSSIA REVIVING DRUG PRODUCTION.

July 1, 1921, the Central Administration of Pharmaceutical Factories, organized in 1919, embraced thirty-seven establishments, ten of which were in Moscow, and fourteen in Petrograd. Chiefly important among them were the factory of Tschimkent (Turkestan), the only one manufacturing santonin from wormseed, having an output of about 500 poods;* the bromine factory of Saki (Crimea), with an annual production of 2,000 to 2,500 poods; the atropine factory in Nowotsherkask, with an annual output of about 36 kilograms; the iodine factory of Archangelsk, which is equipped for an annual production of 400 poods.

JAPAN PLANS DRUG PLANT CULTIVATION.

A recent issue of the *Oil, Paint and Drug Reporter* states that "the Japanese Government has decided to transplant cinchona, jalap and other plants which yield drugs, from their native countries to Japan, evidently on the strength of its experiments made a few years ago. A party of experts will soon visit several districts along the coast of the P cific with a stock of young plants which have been lately imported.

"A number of cinchona trees, all young shoots, were planted some time ago in Miyazaki Prefecture, which is known to be one of the warmest sections of Japan. That test having proved somewhat successful thus far, the government is going to carry the project further. Jalap and cinchona will be planted on Hachijo Island in the Pacific, which is known to be semi-tropic in its climatic conditions. Their cultivation will be under the supervision of experts. The party will soon also visit Shizuoka and Wakayama prefectures, where they will plant principally cinchona shoots."

TEACHING PHARMACY IN BRITISH HOSPITALS.

A recent issue of the British *Hospital Gazette* contains an article by F. A. Hocking, M. B.E., B.Sc., embodying the text of a memorandum submitted by the Pharmacy Unit of the Incorporated Association of Hospital Officers to the British Pharmaceutical Society. Quoting the *Pharmaceutical Journal:* "This memorandum, which followed upon communications with the Society, set forth suggestions relative to the conditions upon which students should be received in the dispensaries of hospitals and similar institutions, and it recommended that only those institutions be approved that possess as a minimum fifty beds and a minimum of 300 outpatients per week—with a limitation of indentured apprentices at any one time to one in an institution with less than 100 beds, two when the beds are more than 100 but less than 300, and three when there are more than 300 beds. Mr. Hocking states that beyond an acknowledgment the Council of the Society have not intimated whether they have considered the memorandum but he suggests that the questionnaire which is reproduced *in extenso* in the article issued by the Society to

* A pood equals 36 pounds av.

certain institutions proposing to take apprentices may be based on the memorandum; it is not merely a remarkable coincidence. He adds that it must not be assumed that the question of pharmacy training in hospitals has been settled. The Unit is still in communication with the Pharmaceutical Society in the hope that a satisfactory arrangement may be effected without the necessity of taking any other action."

THE PREPARATION OF METHYLARSINATES.

At the October meeting of the Paris Society of Pharmacy, M. Mellère read two papers by M. Picon, one on methylarsinate of mercury, the other on solutions of methylarsinates of quinine and of iron. "Mercury methylarsinate," M. Picon states, "cannot be prepared by the action of mercuric chloride on sodium methylarsinate. The best method of obtaining pure mercuric salts is slightly to modify the method laid down in the Codex for preparing benzoate. Methylarsinate of mercury readily dissolves in a solution of antipyrin without decomposition. Solution of methylarsinate of mercury readily dissolves in a solution of antipyrin without decomposition. Solutions of methylarsinate of quinine for injection may be prepared from methylarsenious acid, quinine, and antipyrin. Ferric methylarsinate in solution is obtained by the action of ferric hydrate on methylarsenious acid, the solution being afterwards neutralized with ammonia."

THE VILLAVECCHIA REACTION FOR THE DETECTION OF SESAME OIL IN OLIVE OIL.

Certain olive oils, Tunisian oils especially, yield a red coloration with Villavecchia's reagent similar to that given by mixtures of olive oil and sesame oil. If such oils are shaken with an equal volume of 90% alcohol containing 10 percent of ammonia, and then heated for five minutes on a water-bath to expel the alcohol and ammonia, the red coloration does not take place when the reagent is applied. —J. Prax (*Ann. Falsif.*, 14, 270, 1921; through *J. Soc. Chem. Ind.*, November 15, 1921, 777A).

PETTENKOFER AND THE BAVARIAN ROYAL PHARMACY.

The *Chemist and Druggist* of December 17 states that "the former Bavarian Royal Pharmacy, situated in the palace of Munich, which was founded in the reign of Albrecht V (1550–1579), and opened to the public from 1770, has, since the proclamation of the republic, become state property. Recently, the pharmacy has been reopened in the former guardroom of the late King's bodyguard. The connection of the well-known German scientist, Pettenkofer, with this pharmacy has been commemorated by affixing a tablet over the entrance to the new premises, with the inscription: 'State Residence Pharmacy, formerly Royal Body and Court Pharmacy—Public Pharmacy since 1770—Dr. M. von Pettenkofer, manager 1850–1895.' "

THE A. M. A. JOURNAL REFERENDUM ON THE USE OF ALCOHOL IN THE PRACTICE OF MEDICINE.

Three thousand and sixty-three physicians in Indiana and Illinois, replying to the alcoholic liquor questionnaire sent to 53,000 doctors by the *Journal of the American Medical Association*, divided almost equally on the value of whiskey as a therapeutic agent, while a big majority declared they did not consider that wine and beer had any value in medicine.

The *Journal* in its issue of December 24 gave the tabulation in these two States, the first in which the canvass has been completed.

In Illinois and Indiana combined 1,552 doctors declared they did not "regard whiskey as a necessary therapeutic agent in the practice of medicine," while 1,511 replied they did regard it of value. In Illinois alone 1,149 physicians replied in the affirmative and 594 in the negative, but the Indiana returns reversed the combined totals, 598 Hoosier doctors opposing whiskey and 362 favoring its use.

On the question of the medicinal value of beer, 855 doctors, 668 in Illinois and 187 in Indiana, believed it to be of value, while 2,193, of whom 1,428 live in Illinois and 765 in Indiana, opposed it.

Wine as a medicine found 1,015 supporters, 804 in Illinois and 211 in Indiana; while its opponents totaled 2,028, 740 being Hoosiers and 1,288 Illinois practitioners.

Five hundred and ninety-three doctors reported they know of incidents in their own practice "in which unnecessary suffering or death has resulted from the enforcement of the prohibition laws." On the other hand, 2,326 reported they had encountered no such incidents in their practice.

The doctors of both States returned a majority in favor of restrictions on the prescrib-

ing of whiskey, wine and beer, and a limit on the number of prescriptions to be issued by any one physician. In the two States, 1,813 replies, 1,163 from Illinois and 650 from Indiana, favored restrictions on the prescribing of alcoholic liquors, while 1,166 opposed such restrictions, 891 of the negative answers coming from Illinois and 275 from Indiana.

On the limitation of prescriptions, 1,781 answers ranged from absolute prohibition of liquor to an increase in the present allotment, while 1,118 favored the removal of all limitations.

The *Virginia Pharmacist* of December contains an interesting letter of William Byrd and reference is made also to one of Sir Hans Sloane. The latter bequeathed his library to Great Britain, and this became the nucleus of the British Museum. John Bartram collected plants for Sir Hans Sloane; some references will be found in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION for 1917, p. 754. William Byrd was one of the commissioners to fix the boundary between Virginia and North Carolina; an account is found in the "Westover Manuscripts;" see also reference to paper by C. A. Mayo, JOURNAL A. PH. A., December 1921, p. 969.

PERSONAL AND NEWS ITEMS.

Wilhelm Bodemann, Chicago veteran druggist, honored member of the American Pharmaceutical Association, chairman of the National Telephone Committee of the N. A. R. D., was seriously injured in an automobile accident November 21. He sustained fractures of two ribs and other severe injuries. The machine by which he was struck dragged him some distance. We regret that the opportunity was not given to make mention of the painful and serious accident in an earlier issue, but pleased to learn that the veteran is rapidly recovering. He states that the expressions of sympathy and messages have cheered him and contributed greatly to his convalescence. May he be fully restored to health and given many more years of service and happiness.

Prof. Edward Spease was speaker on the occasion of the installation of the officers of Ohio Valley Druggists' Association in Cincinnati.

Louis V. Middleton, secretary of the Michigan State Pharmaceutical Association, has been confined to his home on account of an attack of pleurisy but well enough to enjoy the Christmas holidays.

J. W. Gayle, of Frankfort, Ky., has been secretary of Kentucky State Pharmaceutical Association for thirty-two years, and of Kentucky Board of Pharmacy for twenty-four years.

Sinclair S. Jacobs of Atlanta, Ga., was married to Miss Muriel Helene Fried of Lawrence, L. I., November 16.

Surgeon-General **Sir George Evatt,** Great Britain, died November 5. He favored a properly organized Army Pharmaceutical Service.

Harry B. French has been elected an honorary member of the Philadelphia Drug Exchange following his resignation as president of this organization, a position he held since the death of the late John Ferguson. A dinner was tendered Mr. French at the Manufacturers' Club, December 15.

Edward Plaut has been elected president of Lehn & Fink, Inc.; **Robert R. Lampa** is advanced to first vice-presidency of the same corporation.

Dr. W. C. Braisted said at the dinner given to President Ambrose Hunsberger, of the N. A. R. D., that the more he sees of the profession of pharmacy, the more respect he has for it.

Among those present at the dinner to President Hunsberger were: S. L. Hilton and Eugene Brokmeyer of Washington; Julius A. Koch of Pittsburgh; Samuel C. Henry of Chicago; James F. Finneran of Boston. The speakers included some of the above named and also S. F. Rutter, Associate Federal Prohibition Director; James F. Cortelyou, Director of Public Safety, Philadelphia; Vice-President C. Mahlon Kline, who spoke for the N. W. D. A.; Dr. F. E. Stewart; E. Fullerton Cook, Chairman U. S. P. Revision Committee; Chairman Charles H. LaWall of the Council, A. Ph. A., and J. C. Peacock, President Pennsylvania Pharmaceutical Association. John W. Raker spoke as Chairman of the Entertainment Committee, and former President Louis Seip, P. A. R. D., ably filled the place of toastmaster. About 150 guests were present to honor the president of the National Association of Retail Druggists—**Ambrose Hunsberger,** who is also an active member of the A. Ph. A., and a past-president of the Philadelphia Branch. The medical profession was represented on the Honorary Committee by the following physicians: George M. Piersol, President of the Philadelphia County Medical Society; William Krusen, president of the Philadelphia Clinical

Society; Ross V. Patterson, dean of the Jefferson Medical College; George H. Meeker, dean of the Post-Graduate School, University of Pennsylvania; Frank C. Hammond and John R. Minehart of Temple University; William A. Pearson, dean of Hahnemann Medical College. Aside from those already mentioned the city of Philadelphia was represented on this Committee by Mayor J. Hampton Moore and Congressman George W. Edmonds; the latter is a graduate of pharmacy.

Henry Watters, member of the A. Ph. A., from Ottawa, Canada, has been elected treasurer of the Canada Retail Merchants' Association.

Joseph W. Noble was elected president of the Philadelphia Association of Retail Druggists' at the recent annual meeting.

OBITUARY.

WILLIAM PENDLETON DE FOREST.

William P. De Forest, of Springfield, Long Island, N. Y., died December 12. The deceased had been in poor health for a number of years, a condition that resulted from the strain of constant attention to the duties of his store during the prevalent influenza of a few years ago.

He was born in Brooklyn, N. Y., December 4, 1847, where he received his earlier education, which was completed in Plainfield, N. J. His first employment in the drug business was in 1863, with William Hegeman at Broadway and Walker Street. Devotion to duty and interest in the business of his employment won for him special recognition and consideration. In 1873 he opened up a store on his own account in Brooklyn, which he sold in 1887, to engage as chemist for a New York firm; however, pharmacy was his life-work, and two years later he purchased a store at Classon and Green Avenues; in 1906 he opened a store in Springfield, L. I., which business he continued until 1920, when failing health compelled him to dispose of it. During the years in the drug business he gained a well-earned and enviable reputation as pharmacist.

Mr. De Forest was one of the organizers of the Kings County Pharmaceutical Society and its third president, and active member of the New York State Pharmaceutical Association, and an honorary member of the New Jersey Association. He was member and president of the Kings County Board of Pharmacy for five years, when he declined renomination. He was a member of the New York College of Pharmacy, and started the movement in Brooklyn which resulted in the establishment of the new college, of which he was a charter member, and one of the first faculty, being elected Professor of Pharmacy.

He joined the American Pharmaceutical Association in 1879, and became a life member in 1916; was a member and vice-president of the New York and Brooklyn Formulary Committee, and when the continuation of the work was given over to the A. Ph. A. he became a member of the National Formulary Committee.

In 1875, Mr. De Forest married Miss Emma Eagleson, who, with their three children, Harriet M., Irene L., and Arthur E., survives him. The latter served in France during the war, and we are indebted to him for these data.

The deceased was an occasional contributor to pharmaceutical literature, and the brief references indicate his interest in pharmaceutical affairs. He was a Past Master of Kings County Masonic Lodge.

CHARLES WILLIAM BENFIELD.

Charles W. Benfield, head of the Benfield Drug Company, Cleveland, died November 11. He was born at Chichester, England, in 1864, and came to this country when seven years of age. He started his first drug store at Cleveland in 1886, and later opened several other stores. He was an ex-president of the Northern Ohio Druggists' Association. The deceased is survived by his wife and two daughters, Grace, and Mrs. Carl Schleicher.

Mr. Benfield joined the American Pharmaceutical Association in 1893.

W. D. WHITE.

The death of W. D. White, oldest member of the Luzerne County (Pa.) Druggists' Association, is reported. The esteem in which our fellow-member was held was evidenced by the closing of the drug stores in Wilkes-Barre and surrounding towns during the hour of his funeral, December 18. The deceased lived at Dorranceton, Pa.

SOCIETIES AND COLLEGES.

NATIONAL DRUG TRADE CONFERENCE.

The regular annual meeting of the National Drug Trade Conference was held at the Hotel Washington, Washington, D. C., on December 13, 1921, and was preceded December 12th by a meeting of the Executive Committee of the Conference.

Problems arising out of the Prohibition Law constituted the main business of the Conference, the following resolutions, pertinent to the subject, being adopted:

Resolved, That the National Drug Trade Conference, in annual convention assembled, hereby assures the Prohibition Commissioner and other duly constituted officials of a continuance of its coöperation in limiting the sale and use of all forms of intoxicating liquor to strictly legitimate purposes;

That it urges upon the Prohibition Commissioner the necessity of employing to the utmost the powers of the Government to protect the drug trade against the invasions of those who seek to use it as a cloak for the conduct of the unlawful business of distributing intoxicating liquors for beverage purposes;

That it emphasizes the importance of intelligent discrimination on the part of the authorities in dealing with all forms of intoxicants to the end that their legitimate use shall not be prohibited or restricted especially with respect to the essential chemical material, ethyl alcohol;

That it urges upon the Commissioner of Internal Revenue the desirability of divorcing as far as possible the divisions of the Prohibition Unit engaged in the enforcement of the laws against the beverage use of intoxicating liquors from those which have the supervision of the industrial or non-beverage use of alcohol; and finally

That the conference deems it a matter of paramount importance that the lay public as well as all officials charged with the enforcement of the National Prohibition Law or the Pure Food and Drugs Act should clearly understand the function of alcohol as an indispensable agent to chemistry and pharmacy for use in the processes of extraction, solution, and preservation in the manufacture of legitimate medicines as distinguished from its effect as a stimulant; and thereby pledges its members to use their influence and all the resources at their command to the end that the general public shall be fully informed of the real object and results accomplished by medicine manufacturers and pharmacists in the use of alcohol in the production of medicines and shall not be misled by false propaganda based upon the condemnation by certain organizations in the medical profession of the use of potable intoxicating liquors as therapeutic agents, a condemnation which is not directed by these organizations against any of the legitimate uses of alcohol in the productions of medicinal preparations.

Resolved, That this Conference hereby enters a vigorous protest against any attempt to amend existing law so as to authorize the Commissioner of Internal Revenue to require the pre-medication in distillery or bonded warehouse, or elsewhere, of pure ethyl alcohol withdrawn for the manufacture of any articles embraced within the exemptions found in Section 4 of the Volstead Act.

WHEREAS, It is provided by Treasury Decision No. 3253, approved December 1, 1921, that the labels on the retail packages of all alcoholic preparations actually manufactured by parties other than those under whose names they are offered to the public shall bear the collection district by State and number and the permit number of the actual manufacturer, whether the goods be manufactured of pure non-beverage alcohol or of denatured alcohol; and

WHEREAS, such required labeling, conveying as it does to the trade and to the public the information that the goods in question are not actually made by the parties under whose names they are sold, would prove highly injurious to the parties marketing such goods and would impose a heavy financial burden upon wholesale and retail druggists and other merchants accustomed to purchasing in bulk goods which are afterwards packaged by them for retail sale; and

WHEREAS, It is a serious question whether there is authority in the law for the requirement referred to, Section 4 of the Volstead Act expressly providing that all alcoholic preparations which are unfit for beverage purposes shall be exempt from the provisions of the National Prohibition Law, and, therefore, from all regulations and supervision prescribed under that statute; therefore, be it *Resolved*, By the National Drug Trade Conference in annual convention assembled that the Conference hereby protests vigorously against the requirements of T. D. 3253 as unnecessary, burdensome, and possibly illegal; and be it further *Resolved*, That the President of the Conference is hereby directed to appoint a committee of three members of the Conference to wait upon the Prohibition Commissioner and to urge that for reasons herein set forth, the regulations referred to be immediately withdrawn or so modified as to relieve the drug trade of the hardships complained of.

The Conference also decided to recommend the adoption of the following amendment to the International Revenue Laws:

International Revenue Laws, 1920, Sec. 3244, Fourth paragraph—(Sec. 18, Act of February 8, 1875) (18 Stat., 309), as amended by Sec. 4, Act of March 1, 1879 (20 Stat., 327). That retail dealers in medicinal and industrial distilled spirits and wines shall pay $35.00.

Every person who sells, or offers for sale, foreign or domestic medicinal and industrial distilled spirits and wines, pursuant to the provisions of National Prohibition Act, of October 28th, 1919, in less quantities than one wine gallon at the same time, shall be regarded as a retail dealer in medicinal and industrial distilled spirits and wines.

Wholesale dealers in medicinal and industrial distilled spirits and wines shall each pay $100.00.

Every person who sells, or offers for sale foreign or domestic medicinal and industrial distilled spirits and wines, pursuant to the National Prohibition Act of October 28th, 1919, in quantities of not less than one wine gallon at the same time, shall be regarded as a wholesale dealer in medicinal and industrial distilled spirits and wines.

The two referendums submitted to its organization members by the Chamber of Commerce of United States were also discussed by the Conference. With regard to the first which would authorize an amendment of the by-laws of the Chamber, the Conference voted to approve; with respect to the Chamber's referendum on the tariff, it was the opinion of the Conference that the views among the different elements of the Drug Trade were likely to prove too controversial to permit the Conference to commit itself one way or the other, and the Secretary was instructed not to cast the Conference's ballot on the referendum at all.

For its other business the Conference authorized the Executive Committee to levy an assessment of $50 on each of its constituent associations; voted to continue its affiliation with the Chamber of Commerce of United States; granted the President general power to name representatives to appear before Legislative or Departmental bodies in matters of emergency not controversial among its constituent members, and adopted a resolution asking Congress to amend the reclassification bill, H. R. 8928, so as to indicate the profession of pharmacy by the word "pharmacy" rather than "pharmacology;" a memorial on the death of the late Dr. Wallace C. Abbott of the Abbott Laboratories was also adopted.

The officers were reëlected as follows: Samuel C. Henry, President; C. Mahlon Kline, Vice-President; W. J. Woodruff, Secretary-Treasurer.

Executive Committee: Samuel C. Henry, W. J. Woodruff, Charles Gibson, Harry B. Thompson, H. C. Christensen, John C. Wallace, Wortley F. Rudd.

The attendance was as follows:

American Pharmaceutical Association, J. H. Beal, John C. Wallace, A. R. L. Dohme; National Wholesale Druggists' Association, W. L. Crounse as alternate for Chas. Gibson; C. M. Kline, Chas. W. Whittlesey; National Association Retail Druggists, Samuel C. Henry, James F. Finneran, Ambrose Hunsberger, American Pharmaceutical Manufacturers' Association, Harry Noonan and J. H. Foy, alternate for B. L. Maltbie; American Drug Manufacturers' Association, J. C. Roberts, J. Fred Windolph, W. J. Woodruff; Proprietary Association, Harry B. Thompson, Philip I. Heuisler, Frank A. Blair; National Association Boards of Pharmacy, H. C. Christensen, W. B. Kerfoot, Jr.; American Conference Pharmaceutical Faculties, Wortley F. Rudd, E. Fullerton Cook.

COMPILATION OF RESEARCH CHEMICALS.

A compilation of research chemicals has been prepared by Dr. Clarence J. West for the Committee on Research Chemicals and the Research Information Service of the National Research Council. The American chemical industry has made a very marked advance during the past few years, and a surprisingly large number of high grade chemicals may now be purchased in America. It has seemed desirable to list these with the names of the manufacturers. The addresses of seventy-four firms are given in this compilation and the list of chemicals occupies eighteen pages, while six additional pages are given to biological stains and indicators.

The so-called "heavy chemicals" have been omitted because there are so many recognized manufacturers and dealers from whom they may be secured. For the same reason practically all inorganic salts are omitted. The question of whether or not to include dealers who are not manufacturers was decided in the negative because the number of firms which would have to be included would make the list too long for convenient use. It is recognized that the list has many short-comings, but it is believed that it is well worth while to publish it, in order that with the coöperation of manufacturers and users of these chemicals it may be revised and made as nearly complete as possible.

The Committee on Research Chemicals is a committee of the Division of Chemistry and Chemical Technology of the National Research Council, and is composed of the following experts: Wm. A. Collins, Chief Chemist, Quality of Water Division, U. S. Geological Survey, Washington; Dr. Roger Adams, Professor of Organic Chemistry, University of Illinois, Urbana, Illinois; Capt. D. B. Bradner, Chief, Chemical Division, Chemical Warfare Service, Edgewood Arsenal, Edgewood, Md.; Dr. Hans T. Clarke, Research Chemist, Eastman Kodak Co., Rochester, N. Y.; Dr. W. F. Hillebrand, Chief Chemist, Bureau of Standards, Washington, D. C.; Dr. George D. Spencer, Organic Chemist, Analytical Reagent Investigations Laboratory, Bureau of Chemistry, Washington; Dr. Clarence J. West, National Research Council, Washington.

Those interested in this booklet should address the Research Information Service, National Research Council, Washington, D. C.

AMERICAN METRIC ASSOCIATION.

The Annual Meeting of the American Metric Association was held in Toronto on December 29, 1921.

Dr. George F. Kunz of New York presided. The members were officially welcomed by Controller Russell Nesbit of the Toronto Board of Control and W. H. Alderson, President of the Toronto Board of Trade.

W. M. Crocker, who represents the American Metric Association in Washington, spoke on "The Legal Status of the Metric System and Pending Legislation." The Canadian members present were unanimous in the opinion that the passage of an effective metric bill by the United States Congress would soon be followed by similar action in the Canadian Parliament. The Association continues to present to Congress additional endorsements from national and State organizations of the Britten-Ladd metric bill now receiving the consideration of the Senate Manufacturers' Committee.

Professor Henry G. Bayer of New York University concluded the morning session by speaking on "The Evolution of Metric Weights and Measures." He cited the speech of Talleyrand in April 1790 on a "new system" of weights and measures advocating that "other nations should be invited to make it international." Mr. Bayer showed that even then this desire for the advantages of international weights and measures was stirring in America. He quoted as follows from the message of George Washington to Congress on October 25, 1791: "A uniformity in the weights and measures of the country is among the important measures submitted to you by the Constitution; and if it can be devised from a standard at once invariable and universal, must be no less honorable to the public councils than conducive to the public convenience."

Theodore H. Miller, Works Manager of the De Laval Separator Company said, in part, "About 1910 we changed to the general use of the metric system throughout our plant. The advantages gained by the use of so simple a system as the metric have been worth to us more than ten times the slight initial cost required to make the change. By placing on our drawings the expression 'All dimensions in millimeters,' we follow the practice recommended by the American Metric Association, and avoid the necessity of placing even the familiar abbreviation mm after figures."

Chairman E. C. Bingham of the Committee on Local Sections has coöperated with the American Chemical Society and other organizations in having 300 of the universities and colleges order their chemical supplies in metric units. Manufacturers and dealers have been found very willing to fill orders in this manner.

Edward Richards and other members present from the Society of American Foresters spoke on "The Application of the Metric System to Forestry."

W. W. Pearse of Toronto, well known as a construction engineer, spoke on coöperation in the metric campaign.

THE NATIONAL HEALTH EXPOSITION.

The National Health Exposition, occupying 60,000 square feet of floor space, will be held in the Jefferson County Armory at Louisville, February 1–9, 1922. This is under the auspices of the United States Public Health Service, State Board of Health of Ky., Jefferson County Board of Health and the Health Department of the City of Louisville. It will include exhibits in hospitalization, nursing, dentistry, medicine and pharmacy. The University of Louisville, the public school system, and various local, State and national health organizations will participate.

The annual conference of the city and county health officers, the annual convention of the Kentucky State Public Health Association and other health meetings are already scheduled in connection with the Exposition.

An institute will be conducted by the United States Public Health Service and its program will include persons of prominence in this important field of work.

AMERICAN SOCIETY OF BACTERIOLOGISTS.

The American Society of Bacteriologists held a three-day convention in Philadelphia during the last week of December. The sessions were held at the University of Pennsylvania, under the auspices of the Bureau of Health.

FRENCH DRUG COLLEGE.

The Paris Wholesale Druggists' Association is promoting a druggists' school for employees of drug firms. Recently, Prof. M. E. Perrot, of the Paris Faculty of Pharmacy, gave a lecture on his recent visit to Morocco, illustrating his remarks with lantern slides. Much of the work in this school is given over to a study of drug sources.

FREE PUBLIC LECTURES AT THE PHILADELPHIA COLLEGE OF PHARMACY AND SCIENCE.

The public has become interested in the lectures at the Philadelphia College of Pharmacy and Science. The last lecture of December was given by Prof. Louis Gershenfeld on "Our Bacterial Friends and Enemies;" Dr. R. P. Fischelis' subject on January 5th was on "Chemistry in Peace and War," and the next will be by Prof. E. Fullerton Cook on "A Thousand and One Odors." The February subjects are "Standardized Remedies" by Dr. Paul S. Pittenger, and "How Chemistry Develops the Industries" by Prof. Frank X. Moerk. The last one listed is for March 2nd on "One Drop of Blood" by Dr. Ivor Griffith.

MINNESOTA STATE PHARMACEUTICAL ASSOCIATION.

The program for the annual convention of Minnesota Pharmaceutical Association is being prepared. The meeting is to be held in Minneapolis, February 15 to 17; among the speakers will be the Governor of the State, the President of the University of Minnesota, President S. L. Hilton of the A. Ph. A., Secretary S. C. Henry of the N. A. R. D., Prof. Henry Kraemer, and others.

THE PHARMACIST AND THE LAW.

THE ATTORNEY GENERAL'S WAR ON RETAILERS.

Announcements have appeared to the effect that the Attorney General proposes a sweeping investigation into retail prices. There is danger in such prosecution of over-zealousness by prosecuting officers. In very few lines can it be shown that the retailer develops into a millionaire; in many instances profit is not considered by the public in connection with sales; an excessive profit in one line is an essential margin in others for the conduct of business. The thing for the Government to do is to work with the trade and industries; coöperation is far better than prosecution.

THE BEECHNUT PRICE MAINTENANCE DECISION.

The U. S. Supreme Court was divided five to four in the case of the Beechnut Packing Company. Justice Day delivered the opinion of the Court and Justice Holmes delivered

a dissenting opinion in which Justices Brandeis and McKenna concurred. Justice McReynolds delivered a separate dissenting opinion.

In explaining the decision Counsel Charles Wesley Dunn states:

"The entire court sustains the fight of the Beech-Nut Packing Co. to decline to sell its products to dealers who do not observe the fair resale prices suggested by it, holding that such refusals to sell, per se, effected by a private manufacturer in pursuance of his own independent discretion and without any purpose to create or maintain a monopoly are not violative of Section 5 of the Federal Trade Commission Act. The court directs that the order of the Federal Trade Commission be modified, whereby the prohibition of such refusal-to-sell conduct, per se, set forth therein, is wholly stricken out.

"The principal issue involved in this case, from the beginning, was whether the commission had the power, under the act creating it, to forbid the Beech-Nut Packing Co., or any other manufacturer from refusing to sell its goods to dealers who fail to observe suggested prices, where such refusal is made in pursuance of the manufacturer's independent discretion, without any purpose to create or maintain a monopoly. The entire court upholds this right of refusal and denies the power of the commission to limit it. The four dissenting members of the court hold that the order of the commission should have been wholly set aside and not modified even to the extent indicated in the light of the record in issue."

The main point of the decision, evidently, is the affirmance of the refusal to sell policy, per se, under the Federal Trade Commission Act, just as it was affirmed in the Colgate case under the Sherman Act.

FEWER FLAGRANT VIOLATIONS OF FOOD AND DRUGS LAW.

The manufacturer who violates the Federal Food and Drugs law to-day is an artist compared with the violator of a few years ago. He does not offend so frequently or so flagrantly but he is harder to catch. The gross and crude violations so frequently found during the early days of the law's enforcement have given place to more subtle forms that, to be detected, require more careful investigation, says the chief of the Bureau of Chemistry, United States Department of Agriculture, in his annual report. On the whole, violations are much less frequent. Only a small portion of the food and drugs in interstate or foreign commerce is either adulterated or misbranded.

In the enforcement of the Food and Drugs Act during the last year, the Bureau of Chemistry recommended the seizure of 1677 shipments and criminal prosecutions in 608 cases. The seizures and prosecutions recommended were based most frequently upon shipments of patent medicines including stock remedies, stock feeds, beverages, eggs, food colors, fish and shellfish, salad oils, vinegars, artificial sweeteners and tomato products, but included a considerable number of other foodstuffs.

The activities of the year on patent medicines included 866 actions directed mainly toward the elimination of false and fraudulent claims on the labels regarding curative powers for a great variety of diseases. The stock feed cases, 152 in number, were based on products deficient in protein or otherwise failing to conform to the claims made upon the labels.

Imitation fruit beverages sold under labels implying the presence of substantial quantities of fruit juice were encountered, but an increasing number of manufacturers have revised their labels to accord with the true composition of their products, or have actually incorporated fruit juice as an essential ingredient of the article.

So-called lithia waters containing only the merest traces of lithium, but alleged to be of the greatest therapeutic value because of their lithium content, have been virtually eliminated from the market. Interstate commerce in mineral waters and other drugs alleged to contain radium, effecting wonderful cures, threatened to develop to large proportions, but was stopped before it attained much momentum.

PROBE OF NARCOTIC DRUG EVIL BY CONGRESS.

Representative Lester D. Volk, of New York, has introduced two resolutions dealing with narcotic drug addiction in the United States.

One resolution directs the Secretary of the Treasury to furnish facts concerning a recent ruling of the Internal Revenue Department which would deprive addicts of the treatment and advice of their physicians and compel them to enter penal institutions and private sanitariums for treatment.

The other calls for an investigation of the "entire subject of drug addiction, the method of handling these unfortunates, the medical

addenda available regarding methods of treatment by private physicians, institutions and sanitariums, the effectiveness of the present laws, rules and regulations to control smuggling, trafficking and abuse of narcotic drugs, and for the purpose of drafting legislation for the control of narcotic drug addiction."

Representative Volk is a physician as well as a lawyer. For many years he has taken a keen interest in the subject of narcotic drug addiction.

VICTIMS OF THE DRUG HABIT RARELY ALCOHOLIC ADDICTS.

The Federal Narcotic Division has announced that during the five months ending November 30, 1921, there were 1,900 arrests and 844 convictions for violation of the Harrison Law. In making the figures public, Dr. Forrer, administrative chief of the division, said:

"I have come to the conclusion that victims of the drug habit are rarely alcoholics. Many are young men and women, rarely out of their teens. Prohibition is not responsible for the increase in drug addicts. I ascribe it to reaction from the strain of the world war, which threw humanity into abnormal paths and environments. It may require a full generation to fully attain pre-war normalcy in that respect."

ALCOHOL RULES REGARDING CONTAINERS AND LABELS AMENDED. BATHING ALCOHOL TO BE PUT UP IN PINT PACKAGES ONLY. (T. D. 3253).

A recent Treasury decision amends Regulation 60 with respect to containers and labels for alcoholic solutions as indicated below, the amendments to be effective December 15:

Section 67 of Article XI, pertaining to the use of intoxicating liquor in the manufacture of alcoholic medicinal preparations and other alcoholic compounds, shall read:

Sec. 67. (*a*) Preparations manufactured under authority of this article may not be sold or used as beverages or for intoxicating beverage purposes, or under circumstances from which the seller might reasonably deduce the intention of the purchaser to use them for such purposes.

(*b*) Any product manufactured with specially denatured alcohol under a permit issued by a collector of internal revenue pursuant to Regulations 61, and held out as rubbing alcohol, bathing alcohol, or as similarly adapted to external uses, must be put up and sold by the manufacturer thereof, in the containers or packages in which it is to be delivered to the ultimate consumer. Such a container or package shall not exceed one pint in capacity.

Three new paragraphs to be known as paragraphs (*d*), (*e*), and (*f*) shall be added to section 95, article XVIII, which pertains to the labeling of liquor as follows:

(*d*) By Title II, Section 4, of the National Prohibition Act, certain articles after having been manufactured and prepared for the market are exempt from the provisions of the Act. When such products are manufactured under permit for marketing under labels and advertising of a person other than the manufacturer, whether such person holds a permit or not, the manufacturer must place on each container a label bearing the symbol and serial number of the permit, as for example, "Mass. H-17." If the person by whom the product is marketed transfers it to other containers for sale, he must likewise affix to each container a label similarly showing the symbol and serial number of the permit of the actual manufacturer. When a preparation is manufactured under a permit issued by a Collector of Internal Revenue pursuant to Regulations 61, any bulk or other container thereof must bear a label showing the Collection District by State and number and the permit number as, for instance, "2 N. Y.-17." It is not necessary that a separate label be used to show the information required by this paragraph, if such information is clearly shown on any label containing any other information or statement.

(*e*) No other matter may be substituted for any statement or showing required by these regulations. A statement that no Government tax is required for sale; that the product conforms to the requirements of the National Prohibition Act, etc., is not sufficient and will not be accepted in lieu thereof. No statement without qualification that a formula has been approved by the Government may be made. If any statement relative to the approval of the formula appears, it must be made entirely clear that the approval relates solely to the unfitness of the preparation for beverage purposes.

According to Bulletin 44, of the National Wholesale Druggists' Association, issued under date of December 9, alcohol "rubs" of the sort above referred to, in the hands of wholesalers or retailers on December 15, may be sold

without reference to the foregoing decision. Manufacturers must observe the decision as to all goods withdrawn from factory for sale after December 15. The decision makes no provision for the bulk goods now on the shelves of wholesalers and retailers. The matter was adjusted by W. L. Crounse, Washington representative for the N. W. D. A.

BOOK NOTICES AND REVIEWS.

A Course of Qualitative Chemical Analysis of Inorganic Substances. By Olin Freeman Tower Ph.D. Published by P. Blakiston's Son and Co., Philadelphia.

A very concise, ultra-modern class-book on qualitative analysis, based strictly on the ionic theory. For more extended descriptive matter, the student is referred to Edwin Lee's or Alexander Smith's or McPherson and Henderson's General Chemistry.

While no one questions for a moment the excellence of these textbooks, why should the beginner be given the impression that these are the *only* ones?

The author is to be commended for classifying the groups according to elemental types rather than the conventional numbers. This will serve as great aid in the future work of the student especially in solving various problems that arise in Industrial Chemistry.

We miss tables or skeleton outlines which have been intentionally omitted by the author on the ground that the student following them too closely, fails to secure delicacy of reaction. We do not agree with this as far as this textbook is concerned since the text is very explicit in this direction. We believe, however, that tabular arrangements of schemes are of great aid to the beginner in memorizing separation-groups—far better than wading through a mass of instruction notes.

Qualitative analysis is a hard task for the beginner in chemistry, hence any aid afforded will be doubly paid in progress.

On page 15 under "Precautions," the author shows the results of extensive experience in the masterly manner in which he presents five fundamental axioms, so essential in qualitative analysis. If these can be sufficiently impressed on the minds of students and even graduate chemists, many difficulties will be overcome.

The book is free from errors, well edited and a credit to the publishers. V. COBLENTZ.

Common Sense Drug Store Advertising by Bert Kahnweiler, a 61 page cardboard covered book 10 inches by 6¾ inches and published by the author is based, as stated on the title page, "On a condensation and vaporization of experience gained from twenty-two years of pharmacy and department store publicity."

The first chapter is devoted to a strong plea to the druggist to boost his business by advertising. The author here states "What we will endeavor to do is to get you all 'riled up,' full of 'pep' for *your own good* and *store* and *community.*" The chapters following them take up the various methods of advertising such as newspapers, letters, window displays, sign boards, movie slides, telephones, special sales, stunt ideas and premiums. The various advantages and disadvantages of these methods are discussed together with interesting anecdotes of the experiences of very many druggists who devised new variations and adaptations of some of the above-mentioned methods of advertising. Many illustrations of successful advertising copy and cuts are reproduced. Then follow chapters on general salesmanship and methods of getting trade. Typical subjects discussed here are "Getting the Clerks Interested," "Handling Customers for Results," "Getting the Doctor with You," etc., etc. As might be expected in a booklet of this kind the business side of pharmacy is allowed free swing and the professional phases are in the background. So, for instance, the author in one paragraph describes a window display intended to boost prescription business. A part of this display consisted of signs which "told of the accuracy of the compounding and prices of three and four ounce prescriptions." Just how a druggist could possibly estimate such prices in advance is not explained and yet this would certainly be valuable information to every pharmacist.

The book, however, makes very interesting reading, written as it is, in colloquial style in a "snappy" forceful manner.

It abounds with stories of successful and original sales stunts which are very readable and many of which can no doubt be successfully repeated by other druggists irrespective of kind of store or location. But in addition to this the author's story brings home the conviction that the druggist should be more progressive, more aggressive in getting business and that he *must* advertise.

HUGO H. SCHAEFER.

The world war has not diminished German literature. Authors as well as publishers are busily engaged bringing forth new books. Technical, chemical and pharmaceutical literature is constantly increasing, new books on these subjects being published monthly, in fact weekly. The well-known publisher, A. Hartleben, Wien and Leipzig, publishes a Chemisch-technische Bibliothek (chemical-technical library), which up to now (November 1921) has reached 368 volumes. The following recent publications—handy duodecimo volumes—have been received for review.

Die Seifenfabrikation. Handbuch für Praktiker, von Friedrich Wiltner, Seifenfabrikant. 10te vermehrte und verbesserte Auflage. 375 pp. Written by a practical soap manufacturer, the book is, as can be expected, a masterwork on this subject. Part I treats of house and textile soaps and Part II of toilet and medicinal soaps and specialties. The historical introduction credits the invention of soap to the old Germans, who, according to Pliny, prepared it by boiling together goat fat and ashes of beechwood. The chemistry and technology of soapmaking is well written, and the 85 illustrations in the text help to make the book still more valuable. The fact that ten editions have been published is a proof of the value and popularity of this book.

Die Fabrikation der Toilettenseifen und der Seifenspezialitäten, von Friedrich Wiltner, Seifenfabrikant. 3te neubearbeitete und wesentlich erweiterte Auflage. 440 pp.

Nine years have elapsed since the second edition of this work has been published. Owing to the advance in the manufacture of toilet soaps the present, third, edition has become a necessity. The book is a thorough treatise on everything pertaining to toilet soaps, from the different oils and fats, the alkalies, the processes, the colors and perfumes, to the finished product. Numerous working formulas are given including such for medicinal soaps. On p. 429 a formula is quoted for a liquid soap, due credit being given to the late Martin I. Wilbert, who published this formula in JOURNAL A. PH. A. The book contains 73 illustrations. On account of the many formulas for medicinal soaps and specialties the work should also be of interest to pharmacists and pharmaceutical chemists.

Chemisch-technische Rezepte und Notizen für die Zahnpraxis. Eine Sammlung von vielen praktischen Vorschiften, Methoden und Winken von Alfred Sedlacek. 4te vollstandig ungearbeitete, bedentendverbesserte und erweiterte Auflage. 680 pp.

A real collection of formulas! Over one thousand working formulas for dental use are given including tooth powders, pastes, soaps, mouth washes, toothache drops, gums and waxes, cements, alloys, amalgams, metals, solders, etc. A number of valuable tables are also appended. Not only dentists but also pharmacists will find valuable information in this book, information which can readily be turned into dollars and cents.

Technik der modernen Kosmetik und die Herstellung Kosmetischer Mittel. Handbuch der Kosmetischen Metarialkunde, der Fabrikation und rationellen Verwendung Kosmetischen Präparate von Dr. Fred Winter. 3te Auflage. Band I, 272 pp. Band II, 343 pp.

This excellent work consists of two volumes. A short review of their contents will show the concise treatment of this broad subject.

Vol. I. Part I. Raw Materials—Aromatics (vegetable, animal and synthetic)—Drugs (organic, inorganic, antiseptics, coloring matter).

Part II. Practical Cosmetics—Historical—Different methods of applied modern cosmetics.

Vol. II. Part III. Manufacture of Cosmetics, classified according to their physical properties and also to their uses. This part also contains a report on different proprietary cosmetics, an analytical chapter and a monograph on Latin prescription writing.

These two volumes should be in the library of every up-to-date scientific pharmacist.

Das Opium. Seine Kultur und Verwertung im Handel von Dr. Phil. Axel Jermstad. Mit 2 Abbildungen, 1 Diagramm und 3 Karten der Produktionsgebiete von Kleinasien, Persien und Italien. 208 pp.

This book is the result of a thesis for the degree Ph.D. in the Pharmaceutical Institute of the University of Basel under the direction of the well-known pharmacognosist Prof. Dr. Heinrich Zörnig, the author of "Arzneidrogen" and honorary member of the A. Ph. A. As Dr. Zörnig states in the preface, the book is a monograph on Opium, treating of its history, geography, pharmacognosy, cultivation and commerce. It is written scientifically, but at the same time so it is readily understood by the public. The history of opium alone occupies 25 pages and is highly interesting. Under Cultivation the various attempts in

the United States are also quoted. A very complete index concludes the excellent book, which we can highly recommend to all interested, and which is certainly a credit to the author and the Pharmaceutical Institute of the University of Basel.

OTTO RAUBENHEIMER, PH.M.

Year Book of the American Pharmaceutical Association. This is the report on the Progress of Pharmacy for 1919, Volume 8, containing the sixty-second annual report on the progress of pharmacy, the constitution and by-laws of the American Pharmaceutical Association and roll of its membership up to October 1921. A complete report of the Treasurer A. Ph. A., for the year 1919, is also included. Reproduction of a photograph of Prof. L. E. Sayre, President of the Association, 1919–1920, is the frontispiece.

The reason for delay in getting out this report is fully explained in the proceedings of the New Orleans A. Ph. A. meeting. The value of this was being developed through the efforts of the Reporter on the Progress of Pharmacy, H. V. Arny, and his collaborators: Anna G. Bagley, Charles W. Ballard, Linwood A. Brown, Karl S. Burkett, Zada M. Cooper, May O'C. Davis, William B. Day, George C. Dickman, Herman Engelhardt, Robert P. Fischelis, Edmund N. Gathercoal, Ivor Griffith, Fanchon Hart, Jeannot Hostmann, Henry Kraemer, Joseph L. Mayer, William A. Puckner, Hugo H. Schaefer, Clyde M. Snow, John K. Thum, Arno Viehoever, Curt P. Wimmer, Heber W. Youngken. The coöperation with *Botanical Abstracts*, begun in 1918 with Prof. Henry Kraemer, has been continued by Heber W. Youngken, and such material as has been used in the YEAR BOOK is credited to *Botanical Abstracts*. It may be stated here that with the increased number of exchanges in foreign countries the number of collaborators has been increased and, therewith, the value of the REPORT will be further enhanced. Here comment might be ended relative to the work which has been continued with usual care and excellence for such statements would follow the lines of former comment. It seems almost impossible to successfully conduct a pharmacy without this reference book, and those engaged in pharmaceutical research find it indispensable. The Bibliography of Pharmaceutical Research, appearing monthly in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, has proved its worth, and those not having reference to all publications can have copies made of complete articles for a small cost.

The volume has over 800 pages. The abstracts appear in the same order as heretofore. The YEAR BOOK is included with A. Ph. A. membership dues, non-members can purchase from General Secretary William B. Day, 701 So. Wood St., Chicago, Ill., at $4.00 per volume.

PUBLICATIONS RECEIVED.

The *Year Book of Pharmacy* (British) for 1921 has just appeared. The year for which these abstracts are prepared ends with June. The volume is arranged as in former years and does not require renewed description. The number of pages is somewhat less than in previous volumes, due to briefer abstracts and the omission of some of the names of past Conference officials; the research list, annually printed heretofore, is also omitted. The British Year Book contains the papers read at the annual meeting of the Conference. The favorable comment made in past years applies to the present volume; J. O. Braithwaite is again the editor of the Abstracts, Thomas Stephenson of the New Remedies Section, and C. H. Hamphire is editor of the Transactions. The price of the volume, which contains 484 pages, is 12s. 6d. net. The publishers are J. and A. Churchill, London.

Digest of Comments on the Pharmacopoeia of the United States and on the National Formulary for the Calendar year ending December 31, 1918. This is Bulletin 127 of the Hygienic Laboratory. The Digest has been prepared by Dr. A. G. DuMez. The work evidences the same care given to the preceding volumes and presents a useful reference for the revisors of the Standards, research workers, and pharmacists. As comment would be along lines of review of former editions, no further statements are made than to compliment the editor, and express appreciation of the assistance rendered by the Public Health Service in publishing these digests.

The Future Independence and Progress of American Medicine in the Age of Chemistry. This report is the outgrowth of an editorial which appeared in the *Journal of Industrial and Engineering Chemistry*, September 1918. The report has been drafted by Julius Stieglitz, Reid Hunt, Treat B. Johnson, F. R. Eldred and Charles H. Herty, and also has the approval of John J. Abel, Carl L. Alsberg, Raymond F. Bacon and F. O. Taylor.

Chemical Structure and Physiological Action, by C. L. Alsberg. This is an address by the retiring President of the Washington Academy of Science, a reprint from its Journal.

Drying Crude Drugs, "Farmers Bulletin," 1231, U. S. Department of Agriculture. "In this bulletin two driers are described and the method of construction presented in detail. Either may be constructed by anyone familiar with the use of carpenters' tools from material which is everywhere available. The manner of drying is described and also the subsequent storage of the dried material."

Papers from the Wellcome Chemical Research Laboratories, 186–191: 186, "Diethylenetriamine and Triethylenetetramine;" 187, "Hyenanchin and Other Constituents of Hyenanche Globosa, *Lamb;*" 188, "Constituents of the Bark of Zanthoxylum Macrophyllum, *Oliver;*" 189, "Arylazoglyoxalinecarboxylic Acids;" 190, "Additive Compounds of Antipyrylaminodiacetic Acid and Its Salts, with Neutral Salts." 191, 4-β-Methylaminoethyl-Glyoxaline."

A Century of the U. S. Pharmacopoeia, 1820–1920. Titles, Synonyms and Abbreviations, by H. A. Langenhan. Bulletin of the University of Wisconsin, Serial No. 1123; General Series No. 907. Wisconsin Pharmaceutical Experiment Station. The Director refers to card catalog of names and synonyms of U. S. P. and N. F. items, prepared under his direction, and heretofore referred to in the JOURNAL A. PH. A. The usefulness of the card catalog in preparing pharmacopoeial life history of the individual galenical preparations, etc., suggested the value of an index and to conserve space the card plan is displaced by the page tabular form in this bulletin. The circular has 12 pages and covers the letter "A." The changes in titles are given and the alphabetical arrangement is according to Latin titles; English terms and synonyms are printed in italics. The compilation will prove valuable as well as interesting; the number of pages required for one letter indicates the extent of the work undertaken.

NEW PUBLICATIONS.

An Introduction to Chemical Engineering: An Elementary Textbook for the Use of Students and Users of Chemical Machinery. By A. F. Allen. $8^1/_2 \times 5^1/_4$. 272. pp. 10s. 6d. (London: Sir Isaac Pitman & Sons, Ltd., 1 Amen Corner, E. C. 4.)

Practical Pharmacy: A description of appliances and processes employed in the preparation of galenicals, with an account of the assay of crude and manufactured drugs, together with a short treatise on the Art of Dispensing. By E. W. Lucas, Ph.C., and H. B. Stevens, Ph.C. Third edition. $9^3/_4$ in. x 6 in. 423 pp. 224 illustrations. 27s. (London: J. & A. Churchill, 7 Great Marlborough Street, W.)

Animal Proteins. By Hugh Gardner Bennett. Industrial Chemistry Series. 287 pp. Price $3.75. (D. Van Nostrand Co., New York.)

Chemical Disinfection and Sterilization. By S. Rideal and E. K. Rideal. 313 pp. Price 21s. (Arnold & Co., London.)

Chemical Warfare: Riddle of the Rhine: Chemical Strategy in Peace and War. By V. Lefebure. 277 pp. Price, 10s. 6d. (W. Collins Sons & Co., Ltd., London.)

Colloids: The Chemistry of Colloids. By W. W. Taylor. 532 pp. Price, 10s. 6d. net. (Edward Arnold, London.)

Cosmetics. By Theodor Koller. 3d Edition. 269 pp. Price, $3.50. (D. Van Nostrand Co., New York.)

Dictionary: Popular Chemical Dictionary. By C. T. Kingzett. 375 pp. Price $4.00. (D. Van Nostrand Co., New York.)

Food Chemistry: Méthodes Actuelles d'Expertises Employeés au Laboratoire Municipal de Paris et Documents sur les Matières Relatives a l'Alimentation. By André Kling. 326 pp. Illustrated, Price, 32fr. net. (Dunod, Paris.)

Food Products, Source, Chemistry and Use. By E. H. S. Bailey, 2d edition, revised. 550 pp. Price $3.00. (P. Blakiston's Son & Co., Philadelphia.)

Handbook of Chemistry and Physics. By Charles D. Hodgman, M. F. Coolbaugh and C. E. Senseman. 8th edition. 711 pp. Price, 24s. (Chapman & Hall, Ltd., London.)

Inorganic Chemistry: Notes on Inorganic Chemistry. By F. Francis. 244 pp. Price, 8s. 6d. net. (Simpkin, Marshall, Hamilton, Kent & Co., Ltd., London.)

Laboratories: Their Plannings and Fittings. By A. E. Munby. 220 pp. Price, 25s. net. (G. Bell & Sons, Ltd., London.)

Microscopy: Critical Microscopy. By Alfred C. Coles. 104 pp. Price, 7s. 6d. net. (J. & A. Churchill, London.)

Modern Chemistry, Pure and Applied. By Arthur J. Hale. Vol. I. 272 pp. Vol. II. 276 pp. Price 16s. net per volume. (Virtue & Co., London.)

Organic Chemistry: An Introduction to Organic Chemistry. By D. L. Hammick. 258 pp. Price, 6s. net. (G. Bell & Sons, Ltd., London.)

Organic Chemistry: Study Questions in Elementary Organic Chemistry. By Alexander Lowy and Thomas B. Downey. 91 pp. Price, $1.00. (D. Van Nostrand Co., New York.)

Organic Syntheses. By Roger Adams, Editor-in-Chief. 84 pp. Illustrated. Price, $1.50. (John Wiley & Sons, Inc., New York.)

Qualitative Analysis: A Textbook of Qualitative Analysis of Inorganic Substances. By Sydney Alexander Key. 80 pp. Price, 7s. 6d. net. (Gurney & Jackson, London.)

Soil Conditions and Plant Growth. By E. J. Russell. The Rothamsted Monographs on Agricultural Science. 406 pp. Price, $5.00 net. (Longmans, Green & Co., New York.)

Analytical Chemistry. Vol. I, Qualitative Analysis. By F. P. Treadwell and William T. Hall. 5th English edition. 597 pp. Price, $4.50 net. (John Wiley & Sons, Inc., New York.)

Biochemistry: A Manual of Selected Biochemical Methods—as Applied to Urine, Blood and Gastric Analysis. By Frank P. Underhill. 232 pp. Illustrated. Price, $3.00 net. (John Wiley & Sons, Inc., New York.)

Inorganic Chemistry: A Textbook of Inorganic Chemistry. By A. F. Holleman. 527 pp. Price, 19s. net. (Chapman & Hall, London.)

Laboratory Manual of General Chemistry. By Harry N. Holmes. 115 pp. Price, $1.60. (The Macmillan Co., New York.)

Microbiologie Agricole. By E. Kayser, 4th edition. 2 vols. 715 pp. 98 figures. Price, 20fr. (J.-B. Baillière & Fils, Paris.)

Organic Chemistry: Résumé Analytique du Cours de Chimie Organique. By Paul Cazeneuve and Albert Morel. 2d edition. 432 pp. Price, 25fr. (J.-B. Baillière & Fils, Paris.)

Organic Medicaments: Préparation des Médicaments Organiques. By E. Fourneau. 350 pp. Illustrated. Price, 25fr. (J.-B. Baillière & Sons, Paris.)

Quantitative Analysis: A Course of Instruction in Quantitative Chemical Analysis for Beginning Students. By George McPhail Smith. Revised edition. 218 pp. Price, $2.25. (The Macmillan Co., New York.)

Quantitative Analysis: An Introductory Course of Quantitative Chemical Analysis with Explanatory Notes. By Henry P. Talbot. 6th edition, completely rewritten. 203 pp. Price, $2.25. (The Macmillan Co., New York.)

Vegetable Oils: Les Huiles Végétalés. By H. Jumelle. 495 pp. 125 figures. Price, 15fr. J.-B. Baillière & Fils, Paris.)

Vitamine Manual: A Presentation of Essential Data about the New Food Factors. By Walter H. Eddy. 121 pp. Price, $2.50. Williams & Wilkins Co., Baltimore.)

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